REPAIR MANUAL
&
PARTS LIST

FOR

FUJI GX680

FUJI PHOTO FILM CO., LTD.
26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

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I. GENERAL

1. Name and function of each part

(1) Hot shoe

Located in the center of the lens board. Interlocked with the optical axis even when a camera movement is made.

(2) Spirit level

Allows the camera to be set horizontally or vertically when the camera is mounted on a tripod or stand.

(3) Battery pack

Special 7.2V Ni-Cd battery designed for this camera. A one hour rapid charging allows about 1000 shots.

(4) Focusing screen

A focusing glass/Fresnel lens combined bright viewfinder.

Interchangeable

(5) Horizontal position warning board

Interlocked with the film holder revolving. When the film holder is set to the horizontal position, it is so displayed in the viewfinder.

(6) ISO film speed indicating window

ISO film speed is indicated with a large size number - Readily seen

When an ISO film speed is set, it is interlocked with the abnormal exposure warning monitor.

(7) Exposure counter LCD (Liquid Crystal Display)

All the film transporting information are displayed. Also displayed is a total number of shots.

(8) Aperture display window - Readily seen

(9) Lens lock/release lever

Double action lever control prevents the lens from being dismounted accidentally.

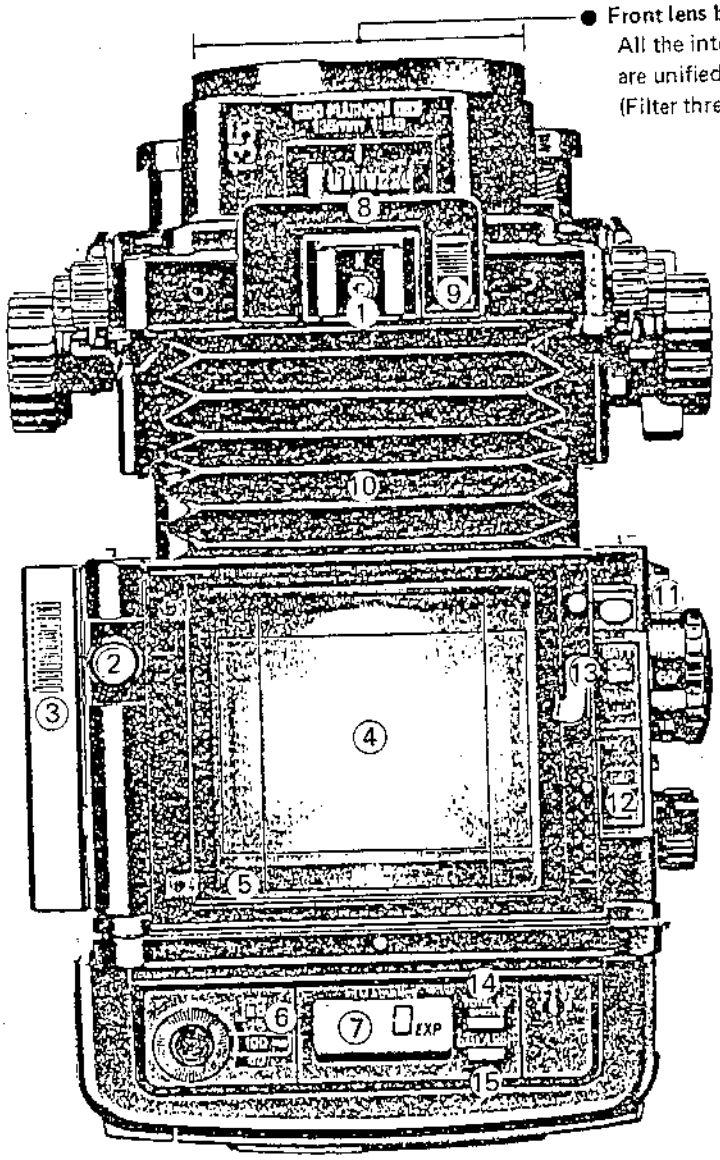
(10) Bellows

The wide angle bellows for camera movements and long bellows for close-up photography are interchangeable in response to various purposes.

(11) Viewfinder lock button

With this button, pop-up viewfinder hood, angle viewfinder, etc. can be interchanged.

Fig. 1



[Battery charging status and photographing ready status]

Battery	Green LED	Red LED	Photographing
Normal level	Lights	–	Ready
	Lights	–	Not ready
Warning level (Charging is required)	–	Lights	Ready
	–	Blinks	Not ready

Either green or red LED lights depending on a battery charging level.

[Abnormal operation warning]

Green and red LEDs blinks alternately.

⑫ Incorrect exposure warning monitor

The photocell built-in the body senses a light value at the film plane. The LED displays a ±2 steps or more over or under exposure. When the remote release is connected, electronic sound also is generated. Incorrectly set shutter speed and aperture can be found immediately after releasing the shutter.

⑬ Stand-by monitor

LEDs display battery charging status, photographing ready status (lens mounting, film holder mounting, dark slide position and shutter speed), and camera trouble (shutter, mirror, light shielding plate and film winding up).

[Battery charging status and photographing ready status]

Battery	Green LED	Red LED	Photographing
Normal level	Lights	—	Ready
	Lights	—	Not ready
Warning level (Charging is required)	—	Lights	Ready
	—	Blinks	Not ready

Either green or red LED lights depending on a battery charging level.
[Abnormal operation warning]
Green and red LEDs blinks alternately.

⑭ Total number of shots indication button

Whenever the film is transported one frame, it is accumulated and total number of shots is indicated in the unit of a 100 digit. This data can be used to determine overhauling timing.

⑮ CALL/LIGHT button

When a film holder is attached to the camera, the lamp lights illuminating the LCD. Even in a dark place, the exposure counter can be seen readily.

When the film holder is detached from the camera, the built-in battery supplies power to operate the exposure counter.

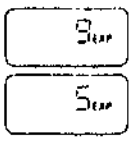
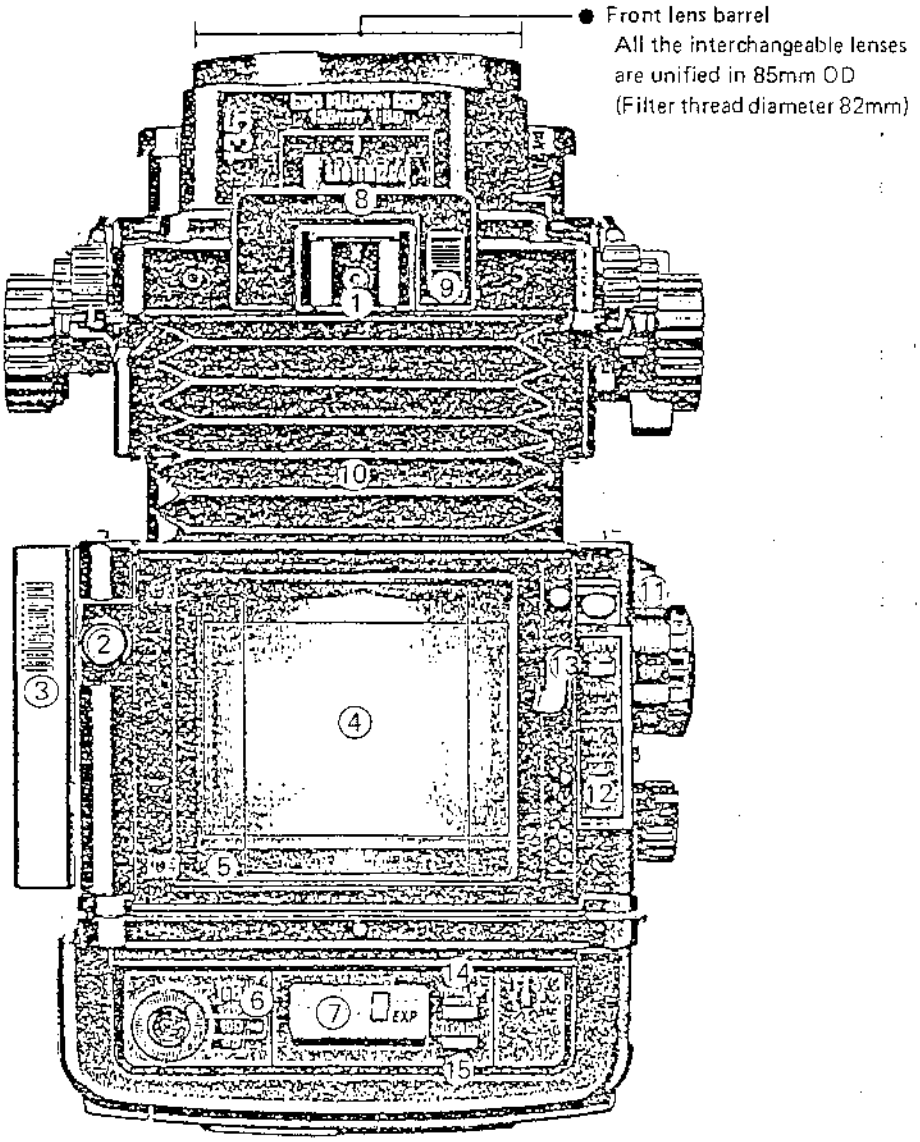


Fig. 2


● Front lens barrel
All the interchangeable lenses
are unified in 85mm OD
(Filter thread diameter 82mm)
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EXP

(16) Dark slide pocket

Accommodates the dark slide while photographing - Convenient in keeping it

(17) Dark slide inserting guide - Eases dark slide insertion

(18) Remote release jack

(19) Mirror up switch - The mirror can be moved up and down by a single touch switch control

(20) Shutter release button - Even when holding the camera with your hands, the shutter can be released with the camera held firmly.

(21) Synchro-jack

Even when a lens shutter type is used, the synchro-jack is still in the camera body. Thus, the lens can be interchanged with the synchro cord connected to the camera.

(22) Synchro test button

Synchro test flash can be made without releasing the shutter. Flash exposure can also be measured at the camera side. Further, synchro cord breaking and improper connection can be checked.

(23) Stop-down lever

Watching the viewfinder, depth of focus can be adjusted easily.

(24) Focusing knob

Large size focusing knobs in both sides ease the focusing.

(25) Focus lock lever

Once focused, it is firmly locked on the rail.

(26) Focusing rail

A 40mm extension rail can be attached allowing macro-photographing. When an f = 100mm lens is used with the extension rail attached, an equimultiple photographing can be made.

(27) Mode dial

OFF ..... Power OFF - Camera does not operate.

SINGLE .... The film is wound up one frame as one shot is taken.

CONT ..... As long as the shutter release button is depressed, pictures are taken continuously.

MULTI ..... Multiple exposures - When an instant film is used, the film is not taken up even if the shutter is released.

(28) Wind button

At the MULTI mode, this button is used to advance the film to the next frame.

(29) AE mode lock button

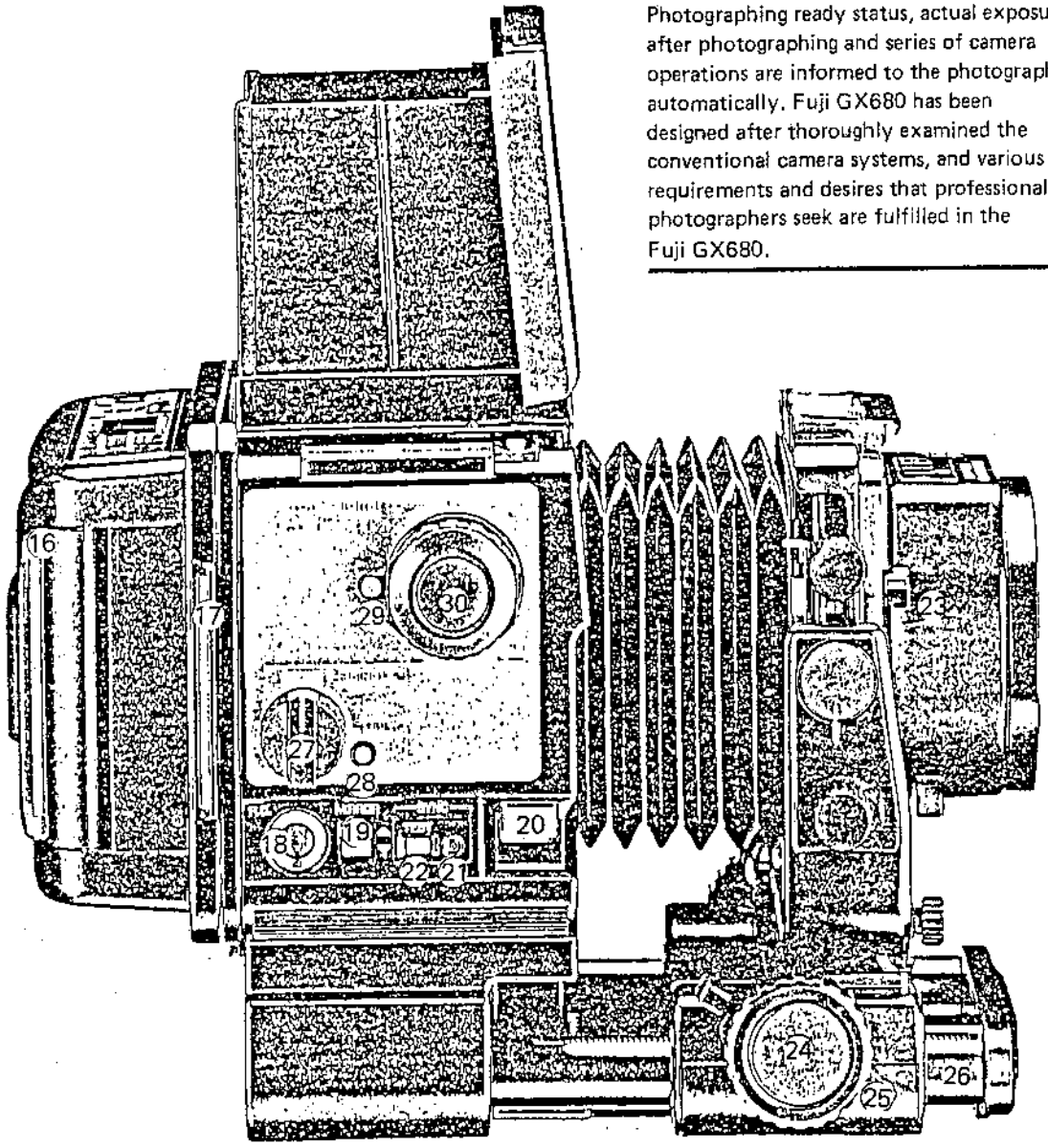
Locks and releases AE mode.

(30) Shutter speed dial

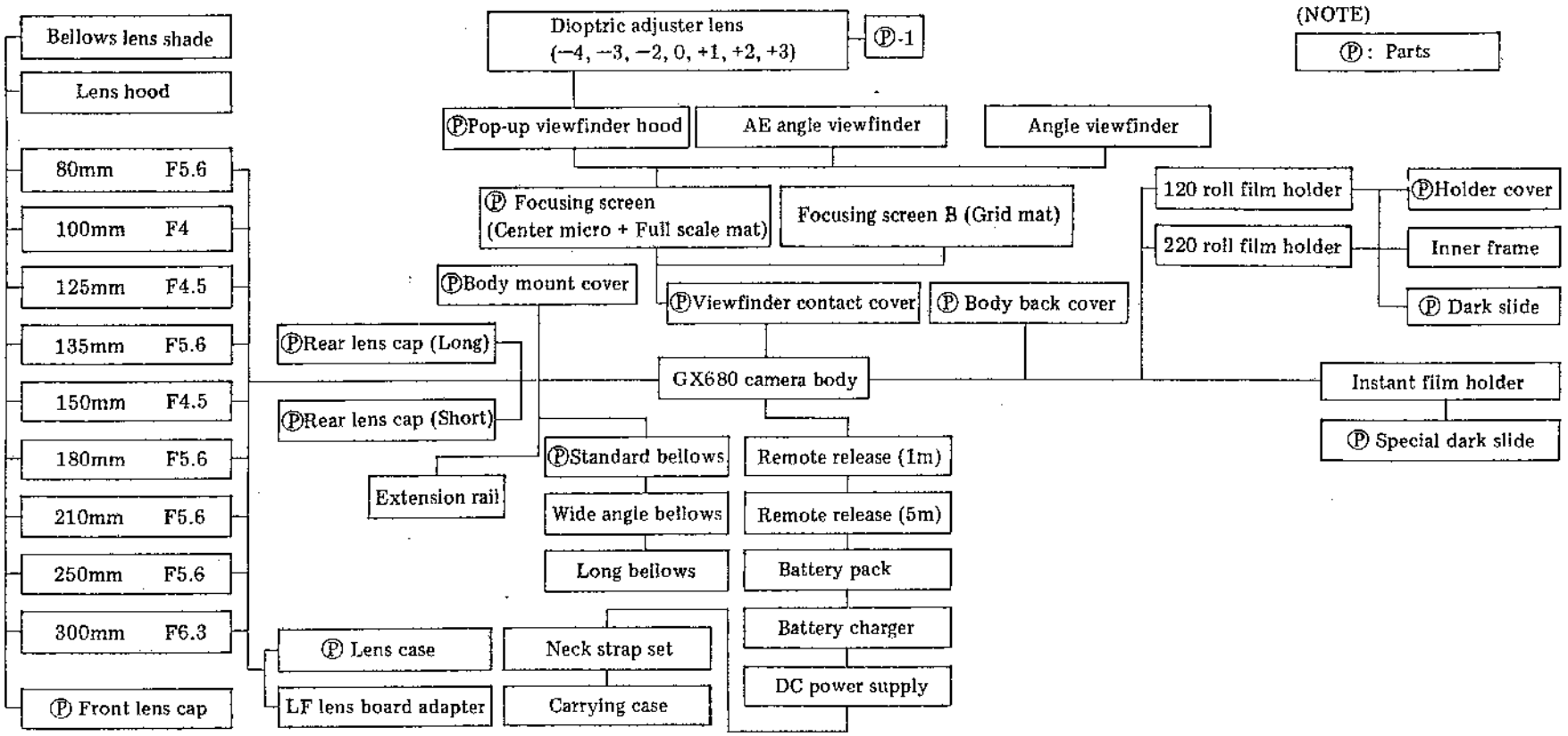
Shutter speed is set to B, 8 through 1/400 sec. and further, this dial is used to set AE mode.

Fig. 3

Photographing ready status, actual exposures after photographing and series of camera operations are informed to the photographer automatically. Fuji GX680 has been designed after thoroughly examined the conventional camera systems, and various requirements and desires that professional photographers seek are fulfilled in the Fuji GX680.



2. FUJI GX680 system



3. Specifications

Type of camera	6 x 8cm lens shutter single-lens reflex camera
Picture size	6 x 8cm (actual picture size: 56 x 76mm) Horizontal-vertical revolving type
Applicable films	○ 120 1/2 roll film (4 EX) ○ 120 roll film (9 EX) ○ 220 roll film (18 EX) ○ Instant film (Fuji Instant Camera FP Series or equivalent) NOTE: For 120, 220 and instant films, the appropriate film holder designed for each type of film must be used.
Lens	Interchangeable Standard lens : EBC Fujinon GX 135mm F5.6 Type of lens mount : Lens board interchange Filter diameter : Thread diameter = 82mm; 85mm OD (common for each lens)
Shutter	#1 electronic control type lens shutter; B, 8 through 1/400 sec.; With aperture selecting lever and stop-down lever; The shutter is charged and released by the motor built-in the interchangeable lenses.
Synchro-contact	X-contact; Synchronized with all flash speeds; Synchronized with Class M Bulb 1/30 second or slower speed; Connected at the hot shoe (on the lens board) or synchro-jack on the camera body; With synchro test button
Shutter release	Electromagnetic shutter release; Special 1m and 5m remote releases (option) can be connected.
Mirror	Automatically returned by the motor built-in the camera body; Powered up and down through switch control.
Multiple exposure	Can be made under multi mode; Film is advanced by the film wind button after completing multiple exposures.
Viewfinder	Single lens reflex type waist level viewfinder; Interchangeable focusing screen (Standard equipment: White mat screen with center micro prism); With a single-touch pop-up (folding) viewfinder hood (standard equipment); With built-in focusing magnifier (x2.5 magnification, −1D standard diopter); Focusing magnifier interchangeable (−4, −3, −2, 0, +1, +2, +3);

Viewfinder (cont.)	Attachable AE angle viewfinder and angle viewfinder (both option); Field of view ratio: 97%; Total viewfinder field of view: 8x8cm size or more; When a horizontal position is selected, it is interlocked with the revolving system, and it is indicated in the viewfinder.
Film holder	Interchangeable; Revolving can be made; Individual film holder for 120 and 220 size films (However, the inner frame is used commonly); With built-in back up lithium battery (ER-3) for memory [Life of battery: about 5 years; To be replaced at a service station]; With ISO film speed setting dial (ISO 25 through 1600 in 1/3 steps); With dark slide accommodating pocket; With film transporting indicator (interlocked with the spool shaft)
Film transporting	For both 120 and 220 film holders, automatic loading system (start mark setting is not required); Power drive type (S, C, M mode selectable); With last frame warning buzzer; Automatic rewinding after ending the film; Film advancing speed: About 1 second per frame
Exposure counter	LCD (Liquid Crystal Display) covering exposure counter, film transporting indicator, film end indicator and total number of shots of a holder; With LCD illumination lamp
Focusing	Bellows feeding out type with the right and left knobs with Lock lever Maximum feed out: 65mm; Extension rail (40mm long) can be attached; Interchangeable bellows (Long bellows and wide angle bellows are optional accessories)
Camera movement	Shift: 15mm each to the left or right; Rise: 15mm Fall : 13mm; Swing: 12° each to the left or right Tilt : 12° each to the up and down NOTE: When shift, rise or fall and swing or tilt are compounded, the above indicated values may not be satisfied depending on the lens used.
Exposure display	Direct light measuring (light reflected on the film plane); With over/under exposure warning (ISO 100 EV4 ~ 18); LED display on the camera body; Electronic tone warning (over/under) when the remote shutter release is attached.

Exposure meter	Built-in AE angle viewfinder (option); Aperture priority shutter speed controlled TTL
LED displays on the camera body	(1) Power ON-OFF; (2) Photographing stand-by status (3) Battery check (4) Incorrect exposure warning (5) Abnormal camera operation warning
Electronic tone warning	(1) Last frame warning; (2) Incorrect exposure warning (when the remote shutter release is used; With volume selector) (3) Abnormal camera operation warning
Power supply	2-way power supply (1) Battery pack (7.2V Ni-Cd battery designed for Fuji GX680) = Option About 1000 shots can be made when fully charged (60 minutes) Charged with the battery charger designed for this battery pack (Option) The camera body is equipped with an automatic cut off (15 minute) circuit (preventing battery consumption) (2) AC power supply (100V) with DC converter (option) used
Others	With a spirit level A lens for large size camera can be used with LF lens board adapter (option) attached (Applicable lenses: Fujinon W180, 210, 250; Fujinon SF180; Fujinon A180, 240; Fujinon T300 - With Linhof board; When a lens for large size camera is used, the mirror up control is required Instant film holder can be attached.
Dimensions and weight	187(W) x 278(L) x 207(H) mm; 4,146 grams (with Fujinon GX135mm lens, 120 roll film holder and battery pack)
Standard attachments	Collapsible viewfinder hood, standard bellows and viewfinder screen

II. DISASSEMBLY

1. **Left side cover assembly (6-13), right side cover assembly (7-33) and bottom cover assembly (6-24)**

   1.1 Pushing the battery lock/release button (7-35), pull the battery pack assembly (7-45) toward the arrow to detach it.

   1.2 Peel off the cover plate (7-32), remove two screws (7-41), screw (7-42), screw (7-43) and three screws (7-44), and remove the right side cover assembly (7-33).

   1.3 Pull out the shutter dial (6-20) and mode dial (6-19).

   NOTE:

   Tightly fitted, but they can be detached by pulling them hard.

   1.4 Remove the screw (6-35), three screws (6-36) and two screws (6-23), and remove the left side cover assembly (6-13).

   NOTE:

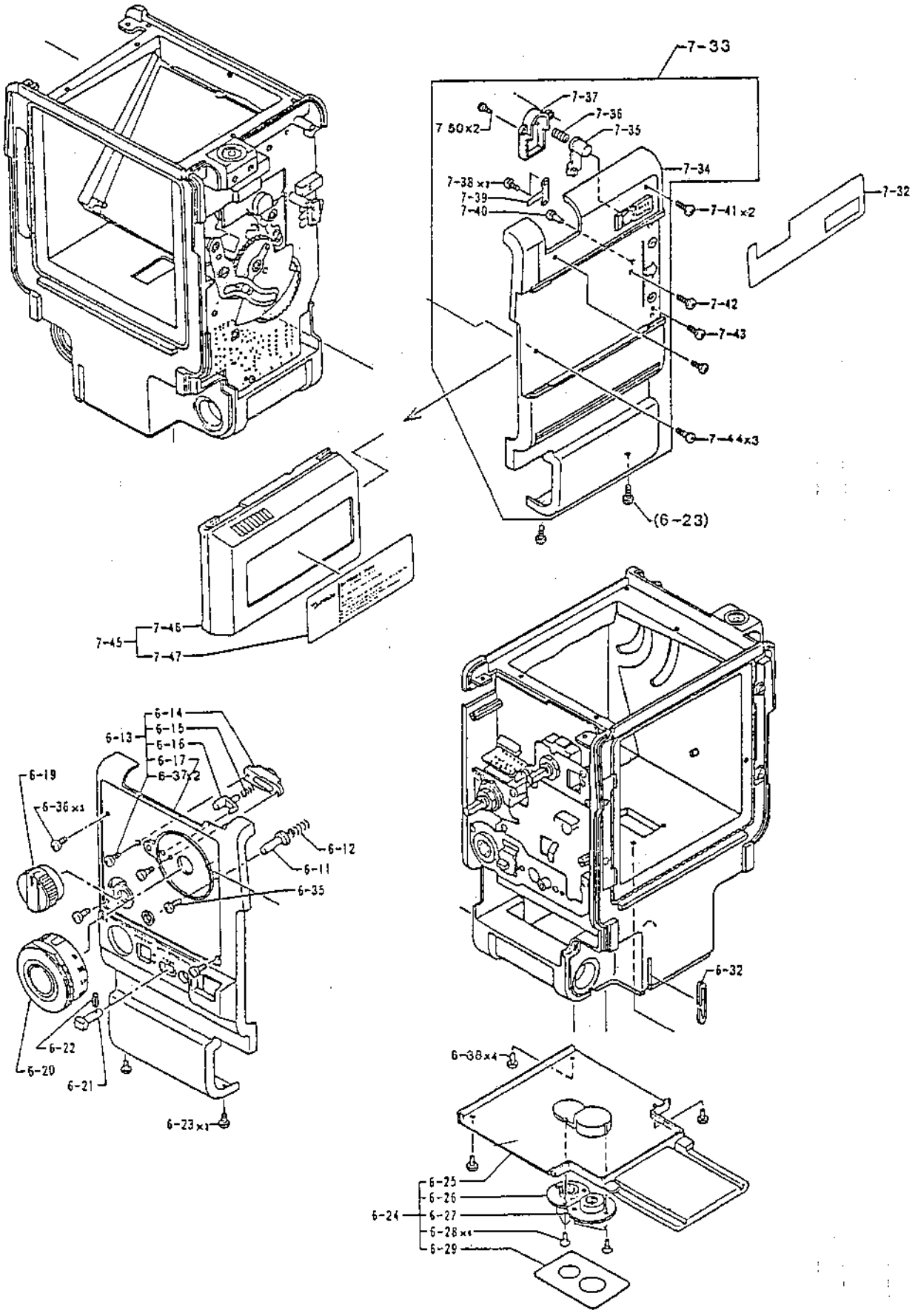
   The button (6-11) and spring (6-12) will come out. Be careful not to lose them.

   1.5 Remove four screws (6-38), and remove the bottom cover assembly (6-24).

   NOTE:

   Three different type screws (total seven screws) are used to install the right side cover assembly (7-33). When reinstalling the right side cover assembly (7-33), use these screws in the correct positions.

Fig. 4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(6-23)
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6-37×2
6-13
6-19
6-36×1
6-12
6-11
6-35
6-22
6-20
6-21
6-23×1
6-32
6-38×4
6-25
6-26
6-24
6-27
6-28×1
6-29

2. **Lens mount, bellows assembly (6-1), front cover assembly (3-23), rail assembly B (3-43), and rail assembly A (3-48)**

2.1 Pull portion A of the bellows holder (4-78) upward, pull the holder of the lens mount also, and detach the bellows assembly (6-1).

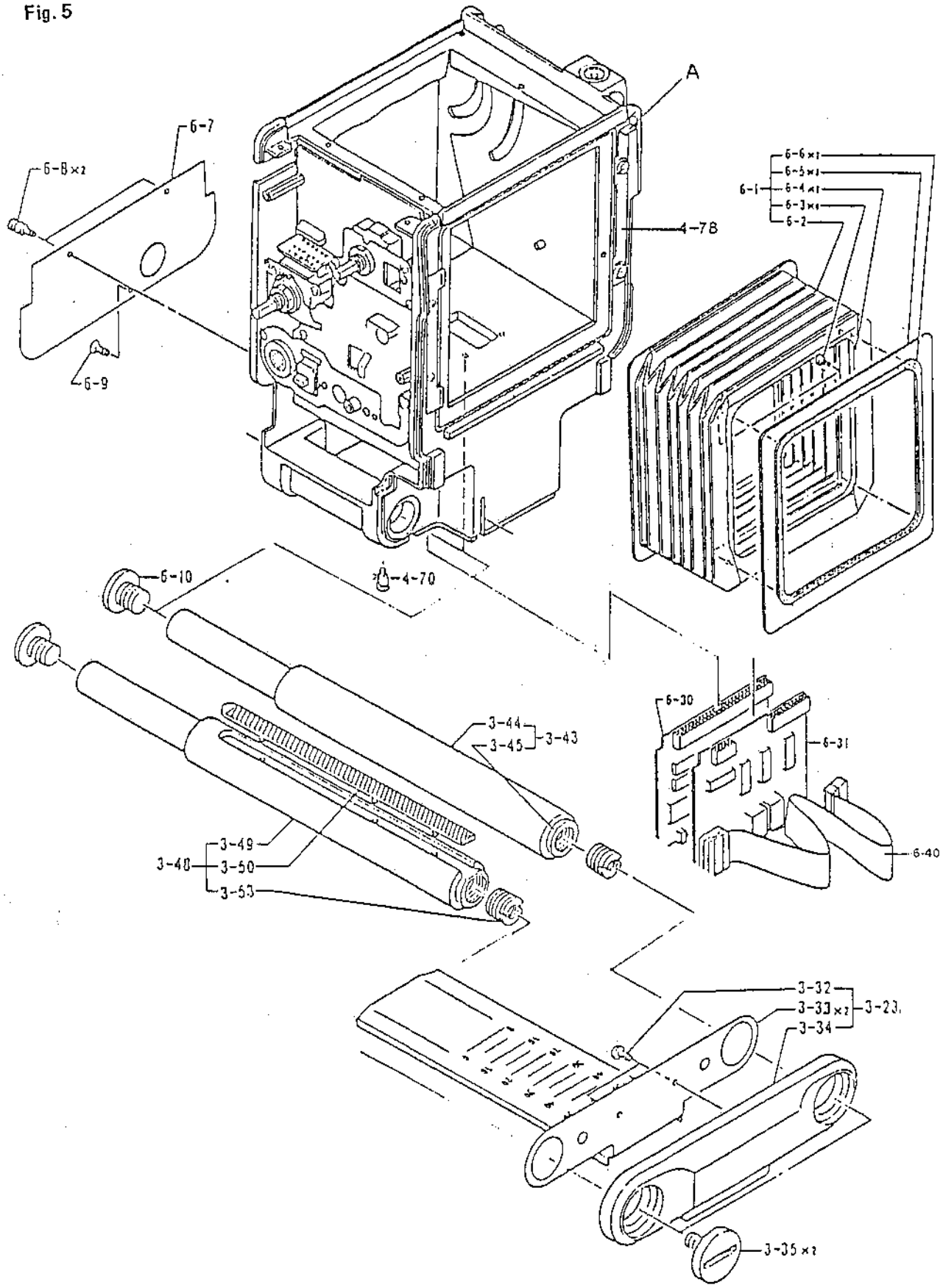
2.2 Remove two screws (3-35) from the front cover assembly (3-23), and pull out the front cover assembly (3-23) forward.

2.3 Detach the connector of the cable (6-40) at the lens side (This cable connects the camera body with the lens.), feed out the lens mount fully toward the front, and pull it out as is.

2.4 Remove two screws (6-8) and screw (6-9), and remove the number plate (6-7).

2.5 Remove two screws (6-10) with a jig (J1206) and positioning screw (4-70), and pull out the rail assemblies A (3-48) and B (3-23).

Fig. 5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6-7
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6-9
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6-1
6-4×1
6-3×1
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3-43
3-49
3-48
3-50
3-53
3-32
3-33×2
3-23
3-34
3-35×2

3. Focusing screen assembly (7-1), top cover assembly (7-10), CPU assembly (6-30), interface board assembly (6-31), light measuring board assembly (6-33), and LED board assembly (5-27)

3.1 Remove four screws (7-51), and remove the top cover assembly (7-10) together with the focusing screen assembly (7-1). The focusing screen assembly (7-1) can be removed from the top cover assembly (7-10) by turning the top cover assembly up side down after moving the stopper to the outside.

3.2 Remove two screws (5-28), and pull the LED board assembly (5-27) upward to remove it.

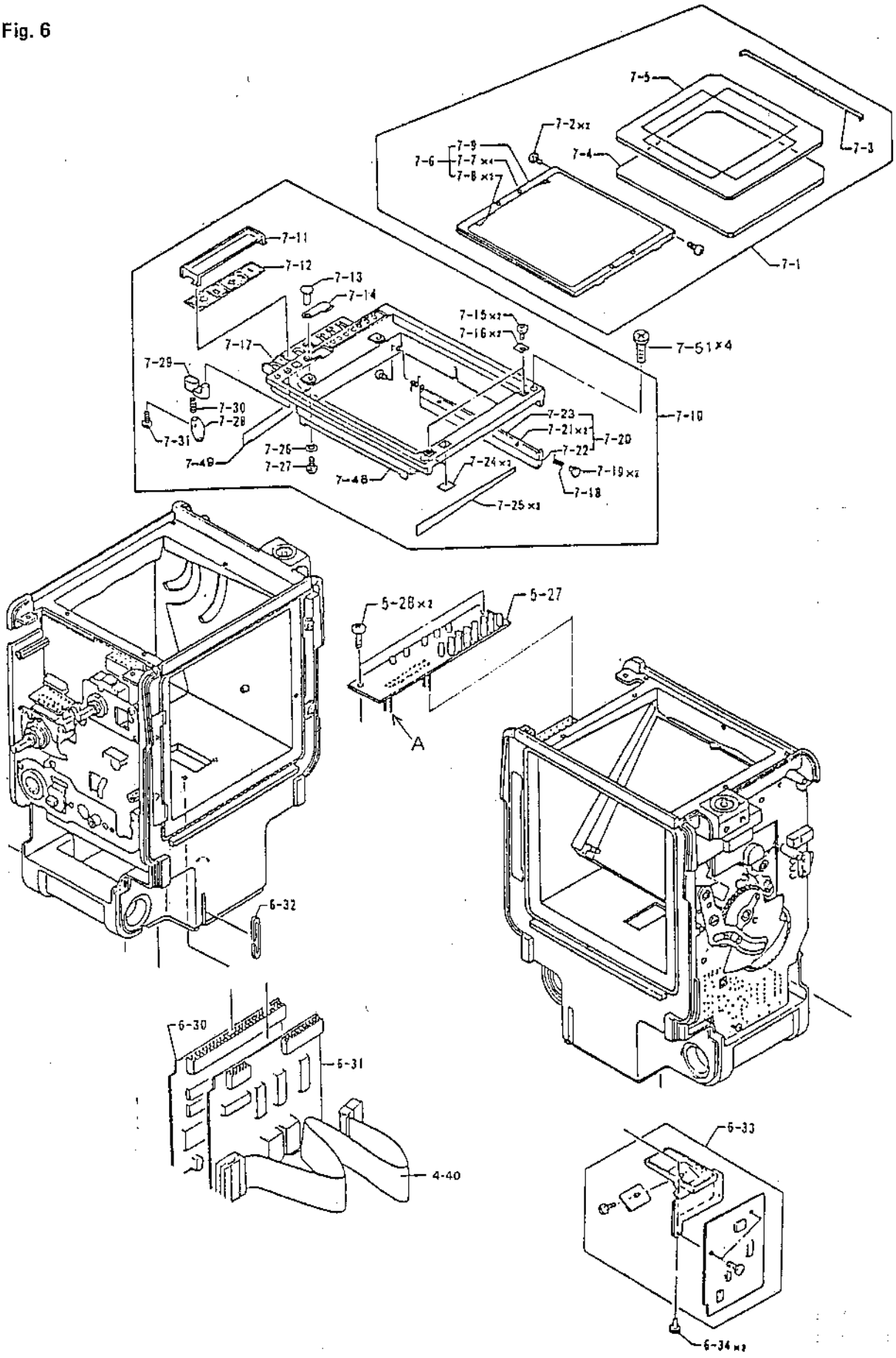
NOTE:

Be careful not to bend the connector pins (indicated as A).

3.3 Remove the CPU assembly (6-30) and interface board assembly (6-31) by pulling them upward and straight. Be careful not to bend the connector pins.

3.4 Remove two screws (6-34), and pull out the light measuring board assembly (6-33).

Fig. 6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7-15×2
7-16×2
7-51×4
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7-24×2
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6-32
6-30
6-31
4-40
6-33
6-34×2

4. Mirror PCB assembly (5-100)

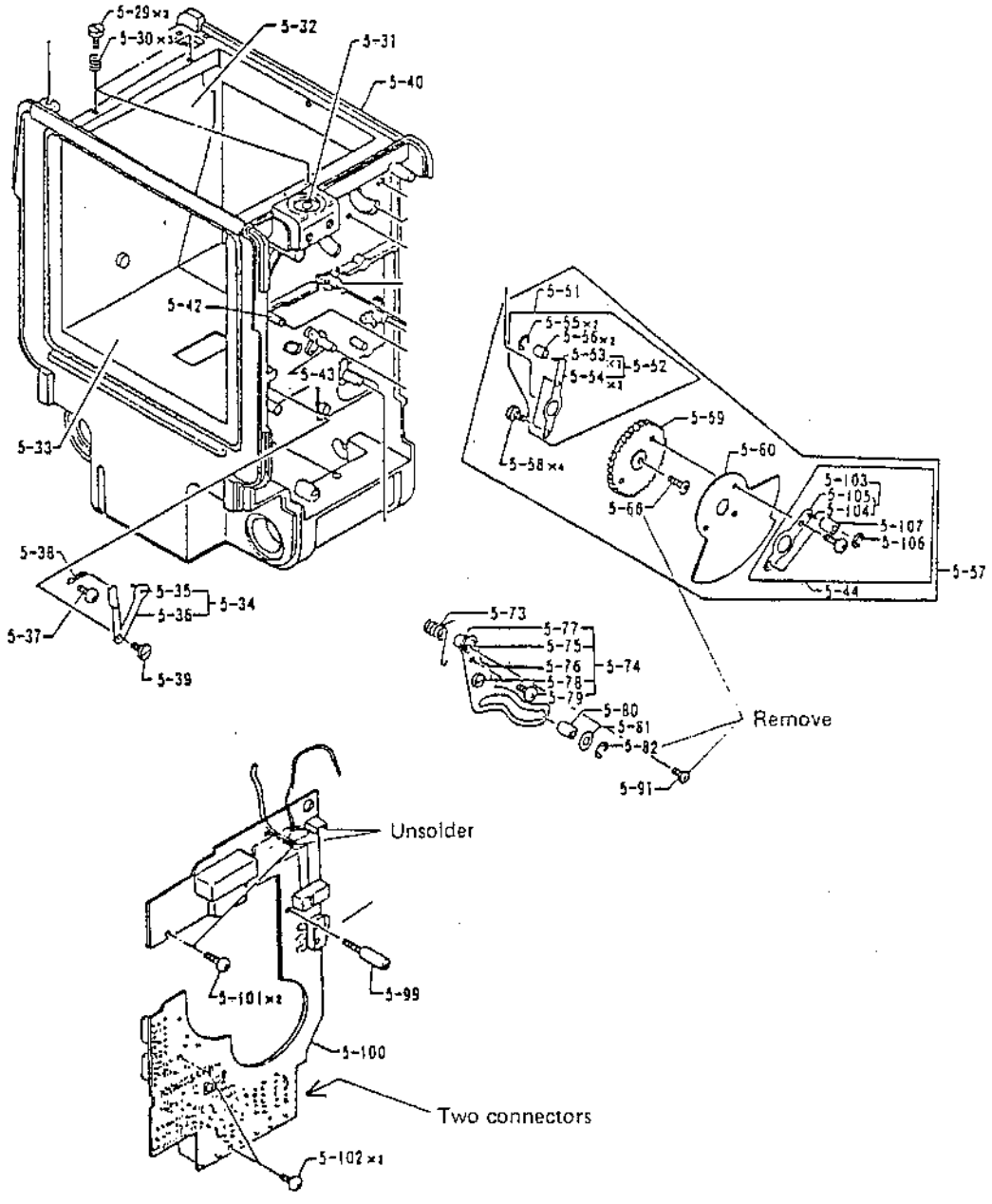
4.1 Remove the screw (5-91) and E-clip (5-82), and remove the washer (5-81), roller (5-80), interlock lever assembly (5-74) and spring (5-73) all together.

4.2 Remove the screw (5-66), and pull out the reflector assembly (5-57).

4.3 Unsolder and disconnect the power lead wires, remove the column (5-99), two screws (5-101), and two screws (5-102), remove the mirror PCB carefully, and disconnect two connectors in the rear side of the PCB.

4.4 Apply solvent (ketone) into the gap surrounding the level assembly (5-31) to melt the adhesive, and when several minutes are elapsed, push the level assembly from the bottom with a piece of wood to remove it.

Fig. 7



5. **Switch board assembly (4-92) and connector board assembly (4-72)**

5.1 Pull out the connectors A, B, C and D used to connect the SV switch assembly (4-25), main switch assembly (4-28) and receptacle assembly (4-37) to the switch board (4-92)

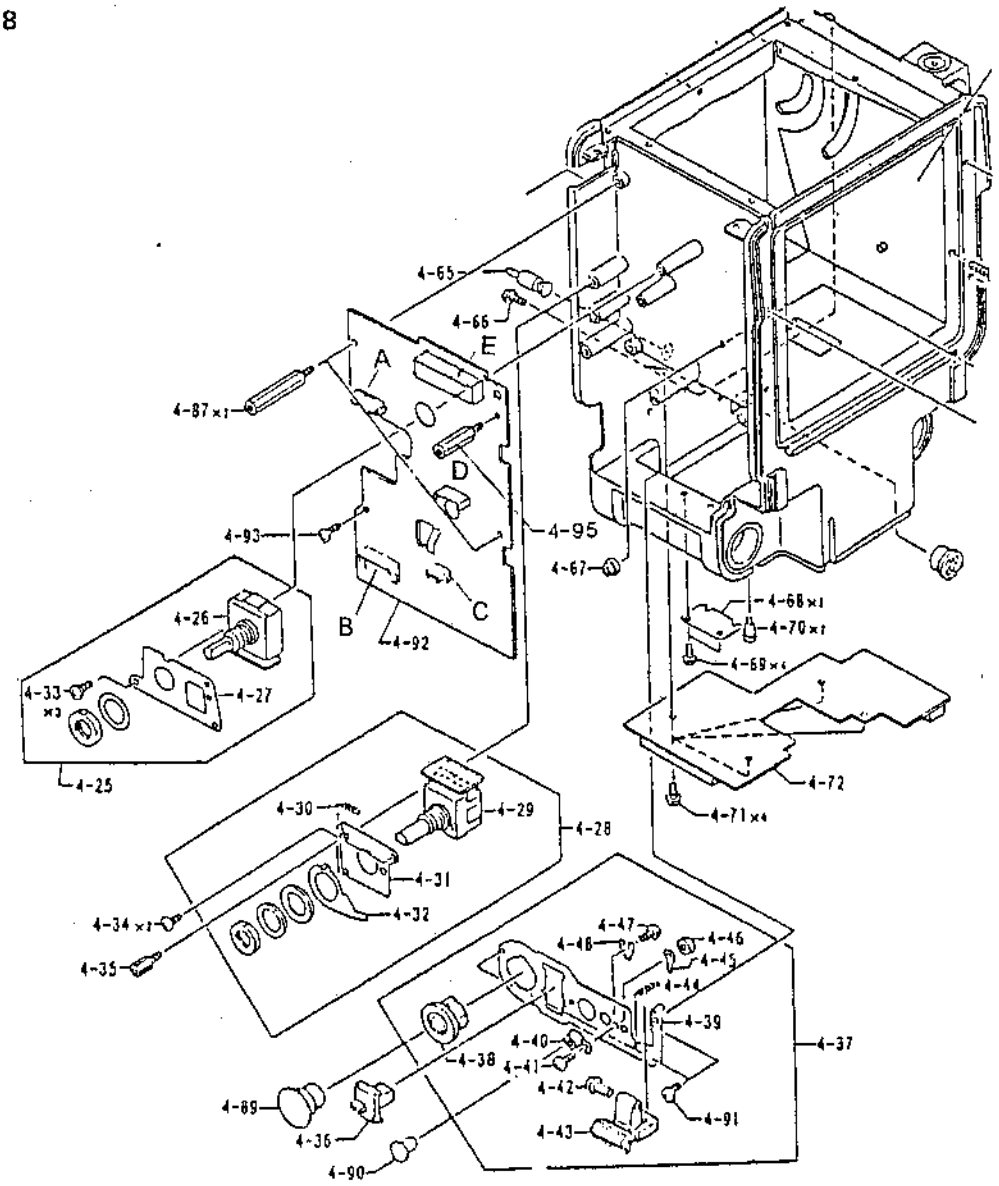
5.2 Remove three screws (4-33), and remove the SV switch assembly (4-25).

5.3 Remove two screws (4-34) and hex column (4-35), and remove the main switch assembly (4-28). Now, remove three screws (4-91), and remove the receptacle assembly (4-37).

5.4 Remove two hex columns (4-87), hex column (4-95) and screw (4-93), and remove the switch board assembly (4-92)

5.5 Remove four screws (4-71), and remove the connector board assembly (4-72).

Fig. 8



6. Lens mount (4-67), seat frame assembly (4-19) and light shielding wall assembly (4-1)

6.1 Remove four screws (4-16) and two screws (4-17), and remove the lens mount (4-67). Now, remove two screws (4-18) and screw (4-85), and remove the seat frame assembly (4-19).

NOTE:

The interlock pin (4-63) and spring (4-64) will spring out. Be careful to keep them.

6.2 Remove three screws (4-14), and remove the light shielding wall assembly (4-1).

NOTE:

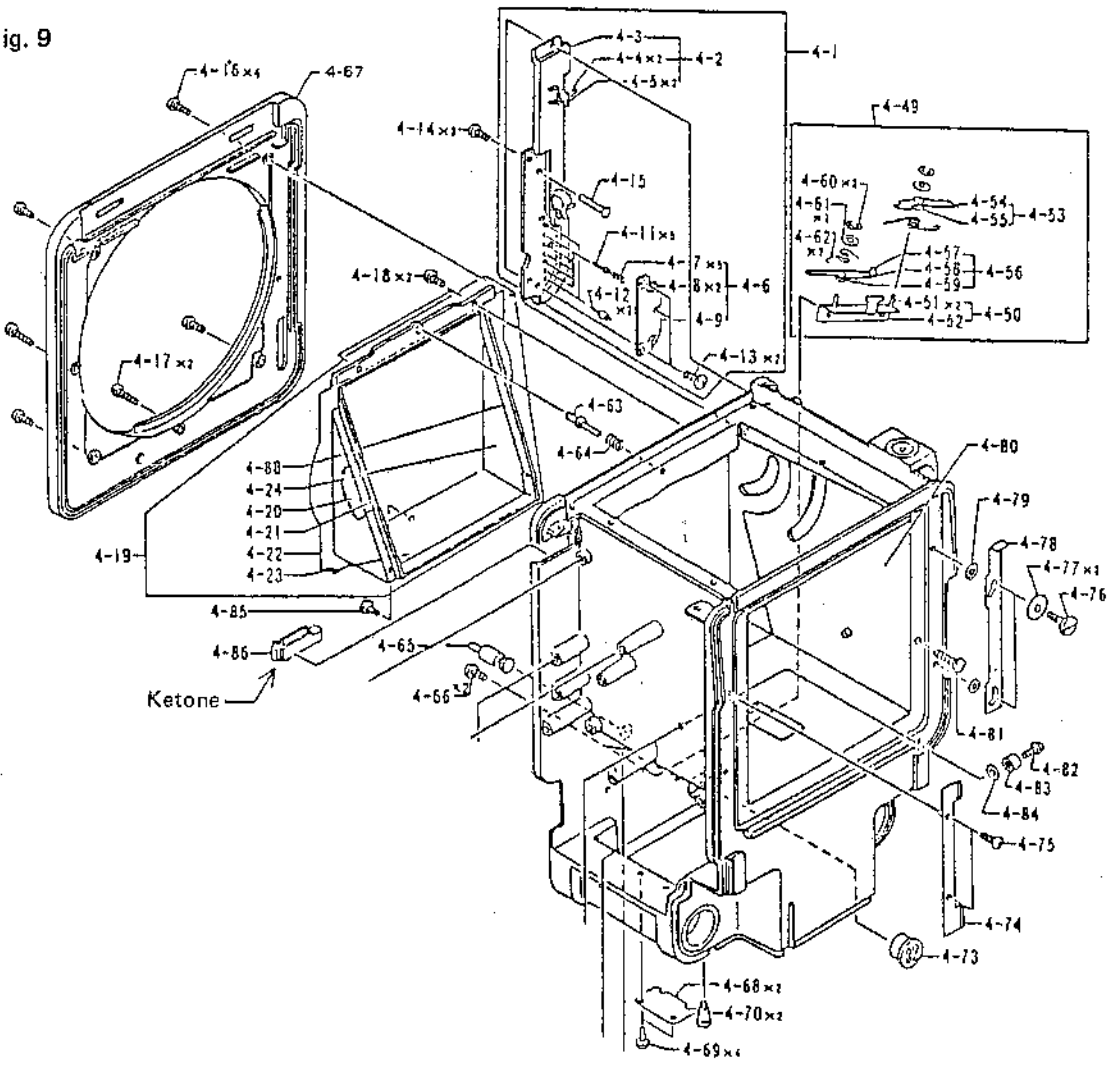
The pin (4-15) will come out. Be careful not to lose it.

6.3 Remove two screws (4-66), and remove the lever assembly (4-49).

NOTE:

Apply solvent (ketone) to the adhered portion of the stopper (4-86) and remove it when the adhesive is melted before removing the mirror assembly (5-8) at the next step.

Fig. 9



7. **Mirror assembly (5-8), light shielding plate assembly (5-1) and gear assembly (5-123)**

7.1 Remove two screws (5-93), and remove the light shielding wall (5-92).

7.2 Remove the E-clip (5-67), and remove the washer (5-65), roller (5-64) and drive lever assembly (5-61).

7.3 Remove the E-clip (5-49), and remove the washer (5-47) and roller (5-46).

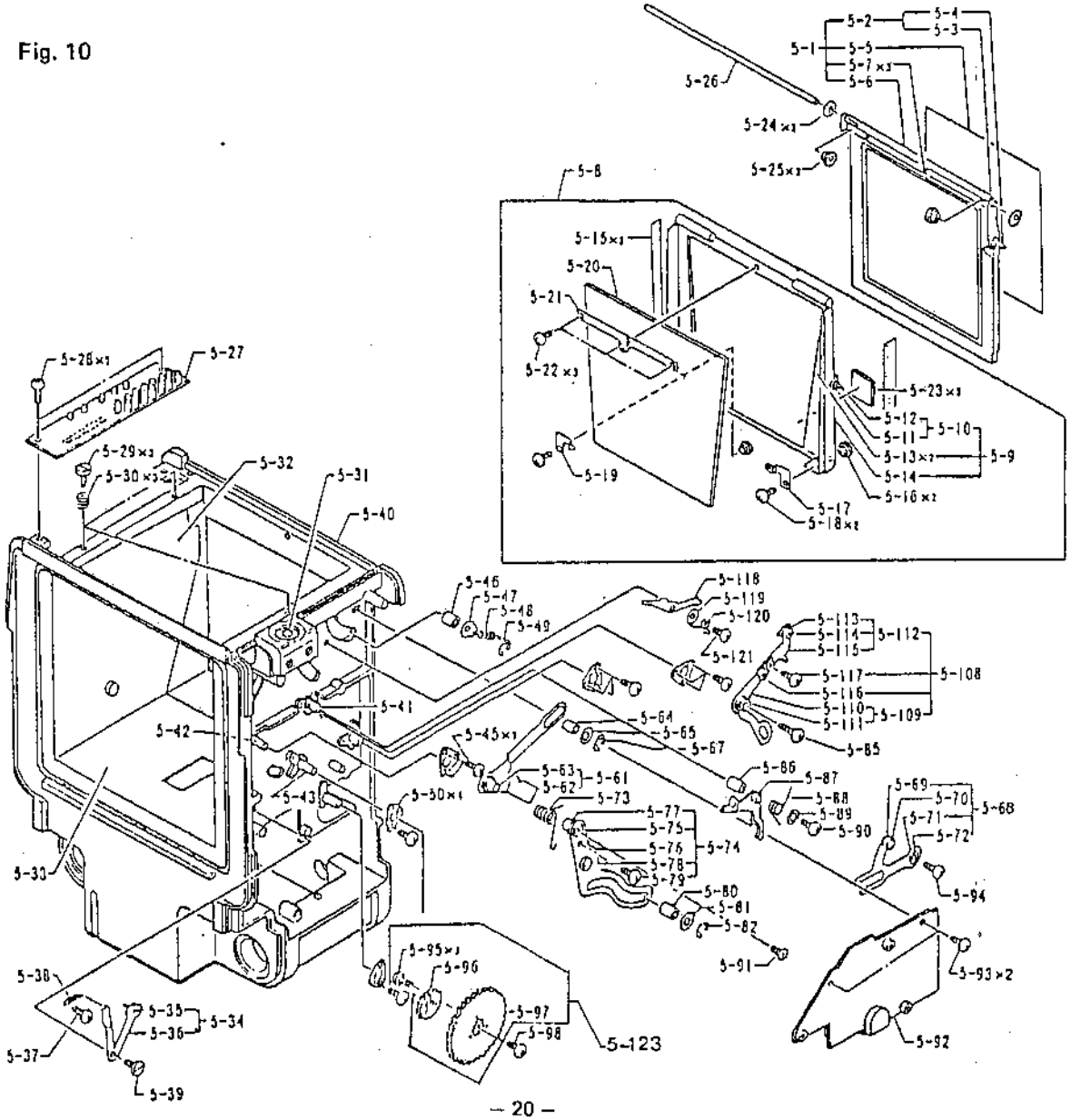
7.4 Remove the screw (5-98), and remove the gear assembly (5-123). The motor is located under it.

7.5 Push the shaft (5-26) from one side with a thin rod, pull the shaft out, and detach the light shielding plate assembly (5-1) and mirror assembly (5-8) from the camera body.

NOTE:

When detaching the light sheilding plate assembly and mirror assembly, do not apply unreasonable force but detach them gently so that they will not be deformed.

Fig. 10



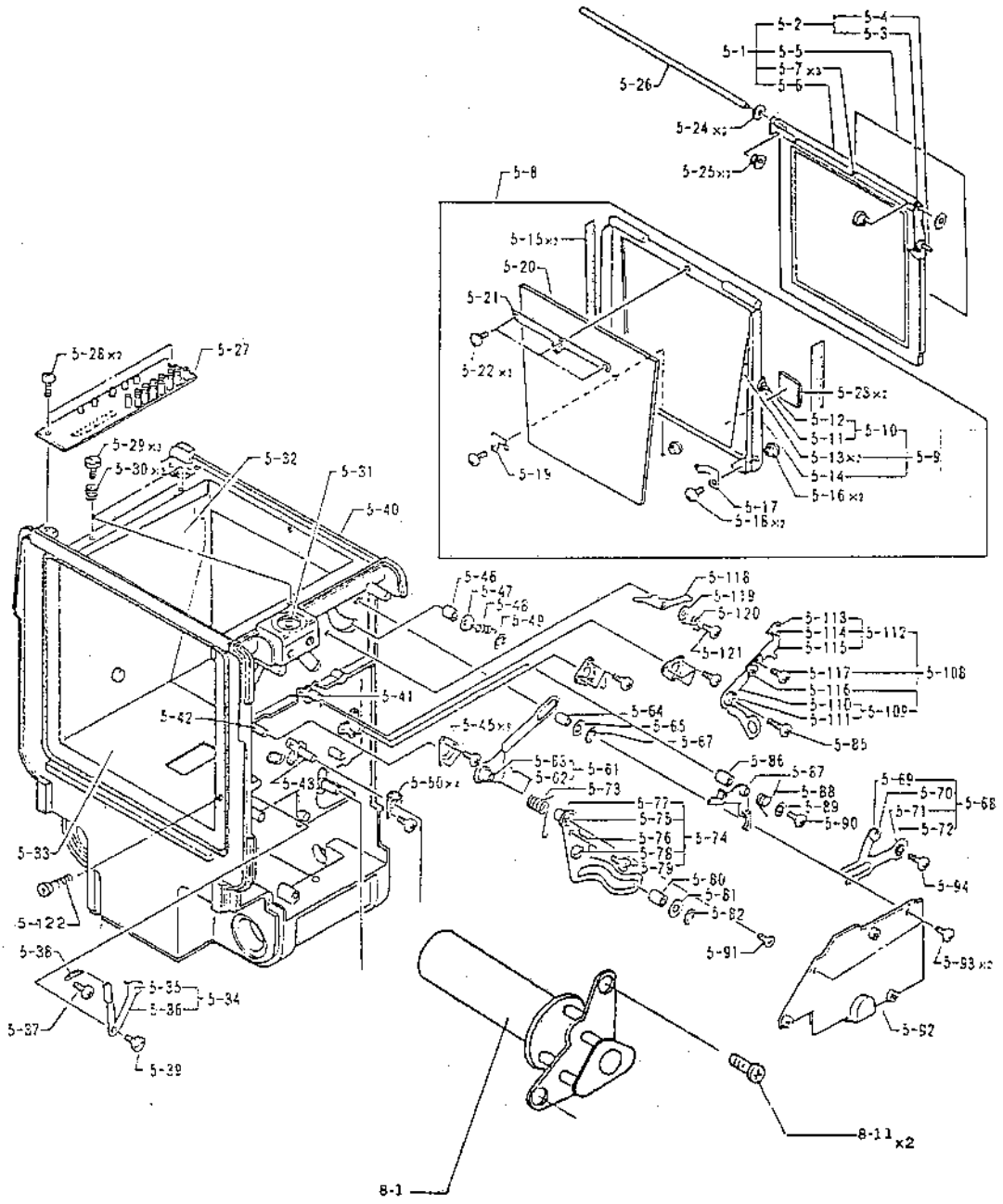
8. Mirror drive assembly (8-1)

8.1 Remove two screws (8-11), and remove the mirror drive assembly (8-1).

8.2 Remove the screw (5-121), and remove the stop lever (5-118).

8.3 Remove other parts as required.

Fig. 11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5-42
5-43
5-44
5-45 x2
5-46
5-47
5-48
5-49
5-50 x2
5-51
5-52
5-53 x2
5-54
5-55
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5-93 x2
5-94
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5-99
5-100
5-101
5-102
5-103
5-104
5-105
5-106
5-107
5-108
5-109
5-110
5-111
5-112
5-113
5-114
5-115
5-116
5-117
5-118
5-119
5-120
5-121
5-122
8-1
8-11 x2

9. Lens mount assembly

9.1 Carrier base assembly (3-1)

a. Remove two screws (3-51) and two screws (3-52). Pull up the base cover (3-30) slowly, and after removing four screws (3-31) from the connector assembly (1-65), remove the base cover (3-30). Then, remove the screw (3-42) to remove the cord clamp (3-41) and remove two screws (3-46) to remove the cord clamp (3-47).

b. Insert a thin screw driver head into the gap surrounding two cover plates (3-27), and peel off the cover plates.

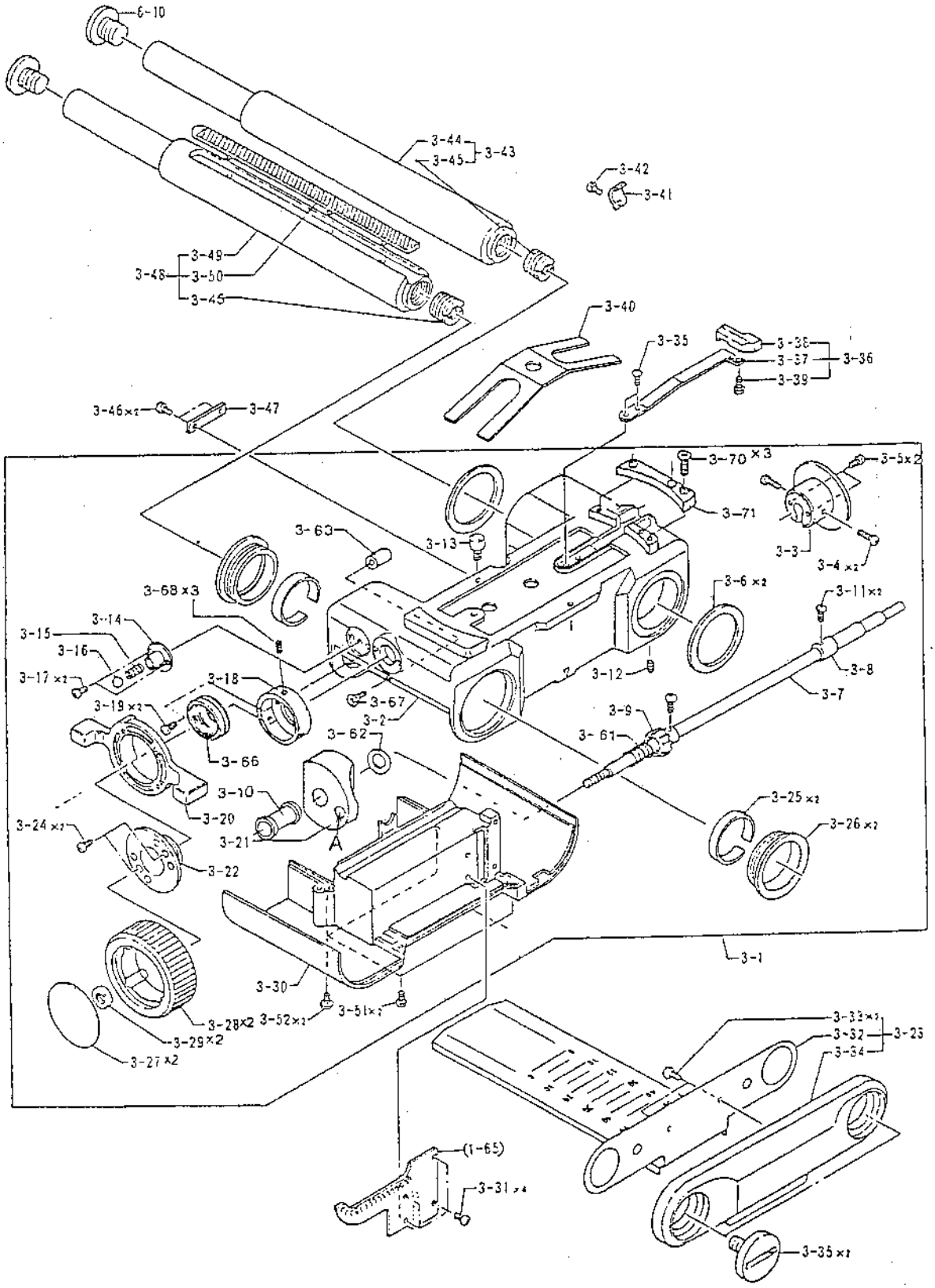
c. Remove two nuts (3-29) with a box spanner. When only one nut is removed, insert a rod into the center hole of the tightener shaft (3-7), and remove the other nut.
Remove the focusing knob (3-28) in the same manner.
The thread is locked with a screw locking agent. The focusing knob must be unscrewed hard.

d. Remove two screws (3-24) and three screws (3-68), and remove the screw (3-22), focusing lock lever (3-20) and shaft holder (3-66). Now, remove the steel ball (3-16) and spring (3-15).

e. Remove two screws (3-11) from the pinion (3-9) and collar (3-8), and pull out the tightener shaft (3-7). Then, the collar (3-10), lock base (3-21), washer (3-62) and spring (3-61) can also be removed.

f. Unscrew two screws (3-4) in a half way, and remove the right shaft holder (3-3) after removing two screws (3-5).

Fig. 12


6-10
3-44
3-45
3-43
3-42
3-41
3-49
3-48
3-50
3-45
3-40
3-35
3-36
3-37
3-39
3-46×2
3-47
3-70×3
3-5×2
3-71
3-63
3-13
3-3
3-4×2
3-68×3
3-6×2
3-11×2
3-14
3-15
3-16
3-17×2
3-18
3-19×2
3-12
3-8
3-7
3-67
3-2
3-9
3-61
3-62
3-66
3-10
3-20
3-21
A
3-24×2
3-22
3-25×2
3-26×2
3-1
3-30
3-28×2
3-52×2
3-51×2
3-29×2
3-27×2
3-33×2
3-32
3-23
3-34
(1-65)
3-31×4
3-35×2

9.2 Frame assembly (1-1)

a. Remove two springs (2-28), and remove two arbors (2-8).

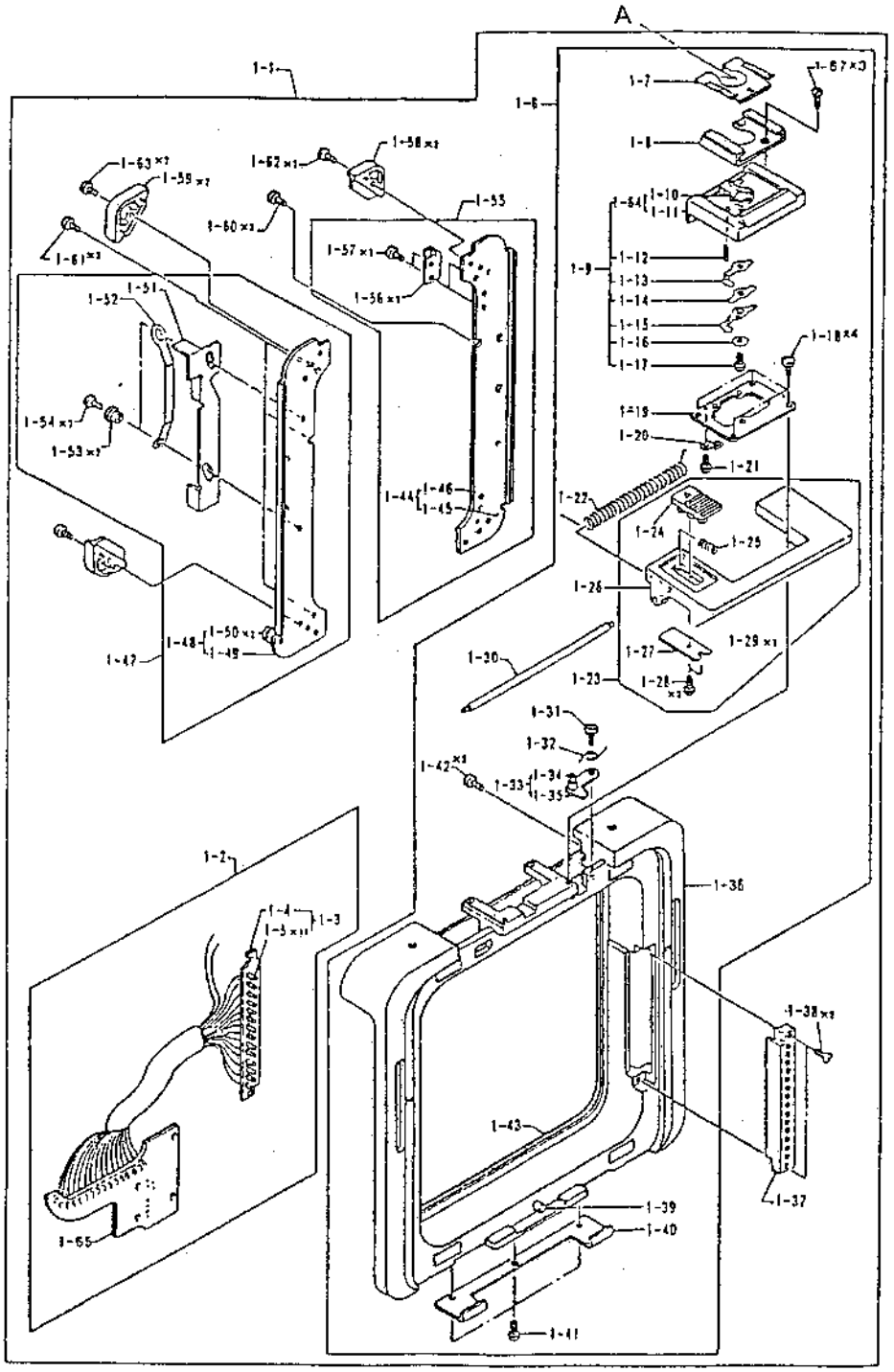
b. Remove two bellows guides (1-58) and two bellows guides (1-59).

Now, remove three screws (1-60) and three screws (1-61), and remove the right holding plate assembly (1-44) and left holding plate assembly (1-48) slowly.

NOTE:

Two steel balls (2-25) will spring out. Be careful not to lose them.

Fig. 13

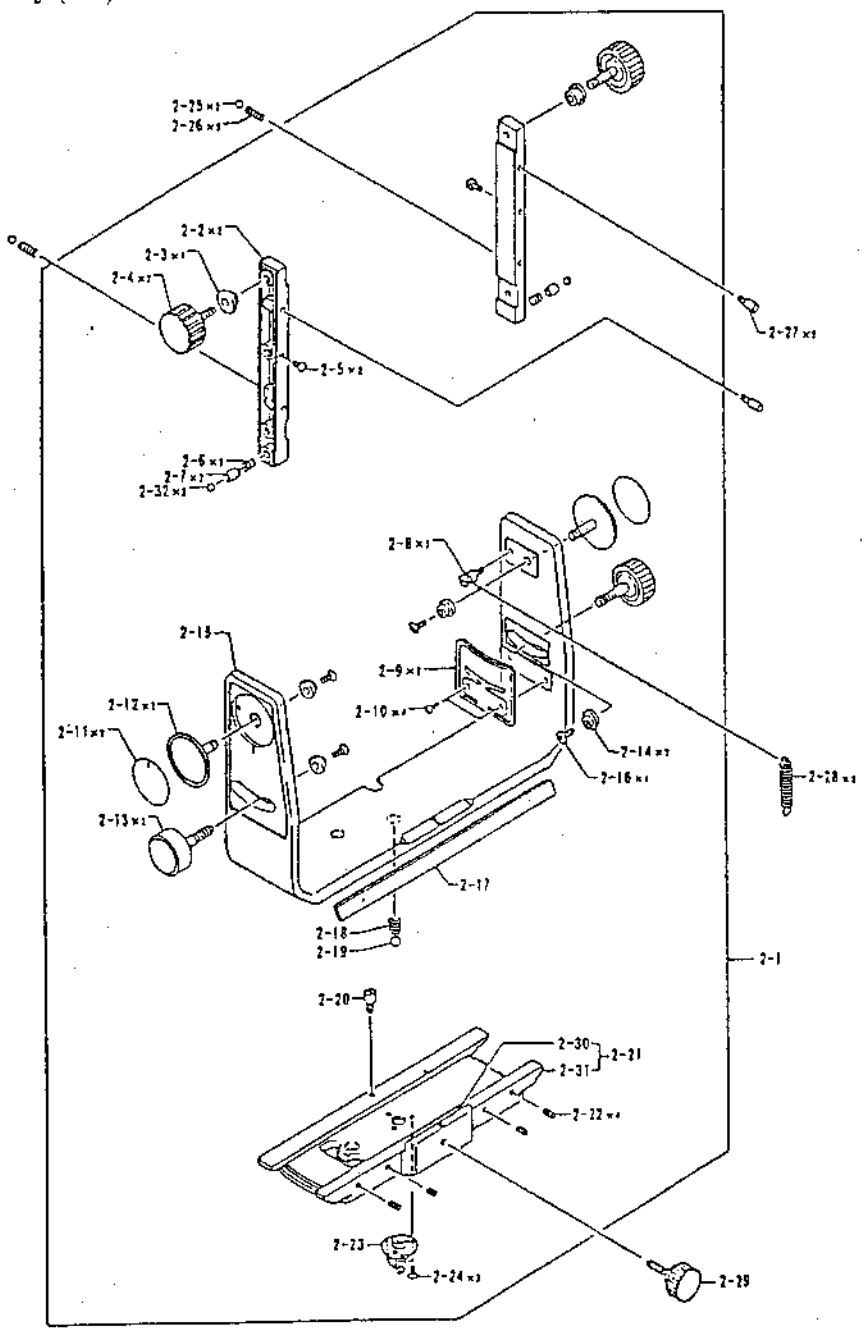


c. Insert a pair of pincers in between the shoe cover (1-7) and accessory shoe (1-8) to remove the shoe cover (1-7). Next, remove three screws (1-67), take out the contact seat assembly (1-9), and after unsoldering and disconnecting soldered portion, remove the contact seat assembly (1-9).

d. Securely hold the spring (1-22), remove two screws (1-42), and after leaving your hand away from the spring, remove the lens holder assembly (1-23). Next, pull out the shaft (1-30), and remove the spring (1-22).

e. Remove two screws (1-38), and remove the pin board seat (1-37) and connector assembly (1-2).

Fig. 14



9.3 Standard assembly (2-1)

a. Remove two bottom side screws (A and B) out of four screws (2-16), and remove two tightener knob assemblies (2-13) and two spacers (2-14).

b. Remove two screws (2-5), and pull out two supports (2-2) slowly.

NOTE:

Two springs (2-6) and two steel balls (2-32) will spring out.

Be careful not to lose them.

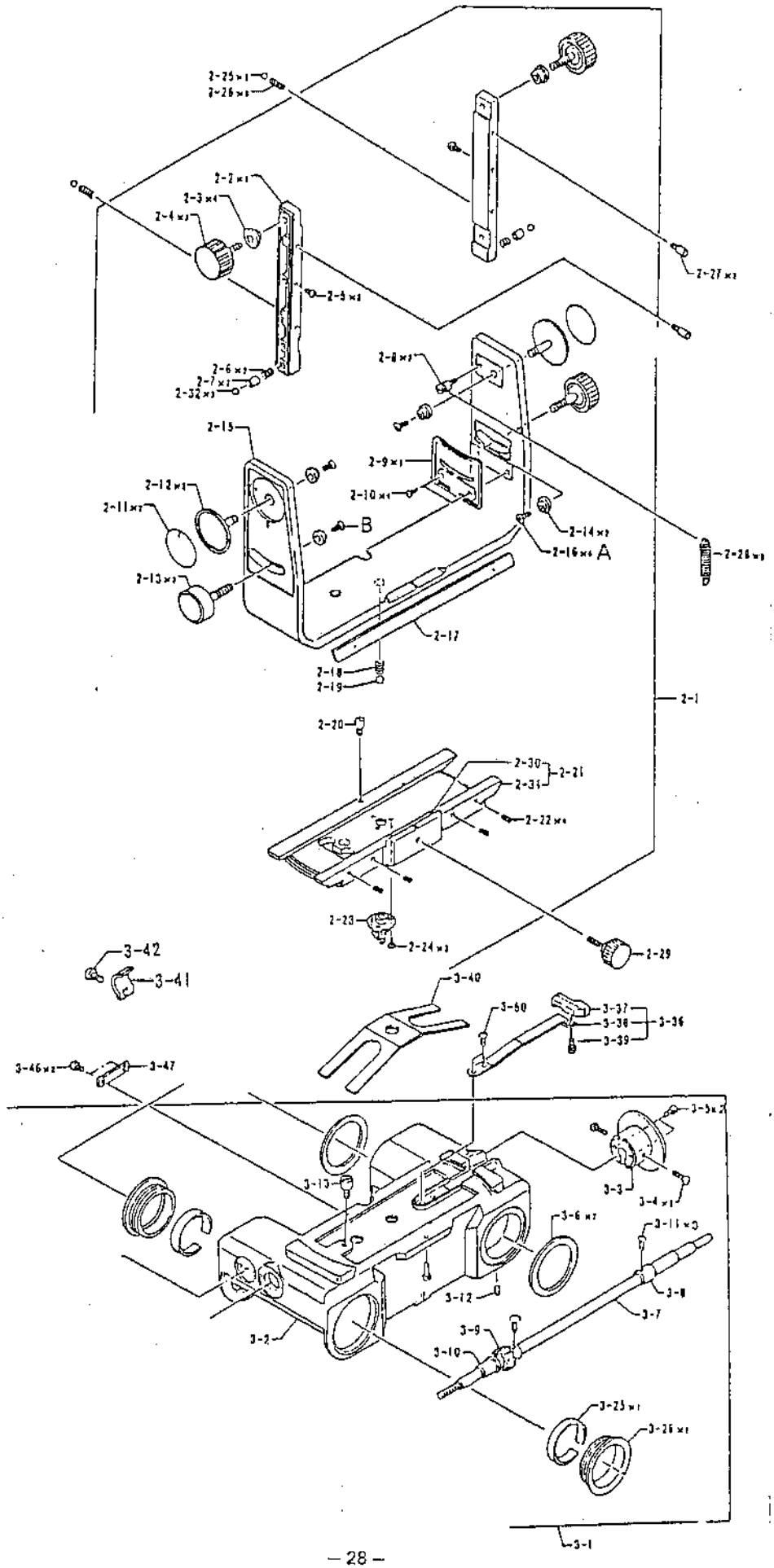
c. Remove the screw (2-20), loosen the lock knob (2-29), and pull out the U-arm (2-15) slowly.

NOTE:

The steel ball (2-19) and spring (2-18) will spring out. Be careful not to lose them. Further, the adjuster plate (2-17) will also come out. Handle this adjuster plate carefully so as not to deform or damage it. This plate has been slid and adjusted together with the U-arm and shift base assembly (2-21).

d. Remove the screw (3-13), and pushing the shift lock lever assembly (3-36) down, remove the shift base assembly (2-21) by pushing it down and by turning it.

Fig. 15


2-25×1
2-26×3
2-2×1
2-3×1
2-4×2
2-5×1
2-6×2
2-7×1
2-32×3
2-27×1
2-8×2
2-15
2-9×1
2-10×1
2-12×1
2-11×2
B
2-14×2
2-16×4
A
2-28×3
2-13×2
2-17
2-18
2-19
2-1
2-20
2-30
2-31
2-21
2-22×4
2-23
2-24×1
2-29
3-42
3-41
3-40
3-60
3-37
3-38
3-39
3-36
3-46×2
3-47
3-5×2
3-3
3-4×1
3-13
3-6×2
3-11×3
3-12
3-8
3-7
3-2
3-9
3-10
3-25×1
3-26×1
3-1

III. REASSEMBLY AND ADJUSTMENT

1. Lens holder assembly (1-23)

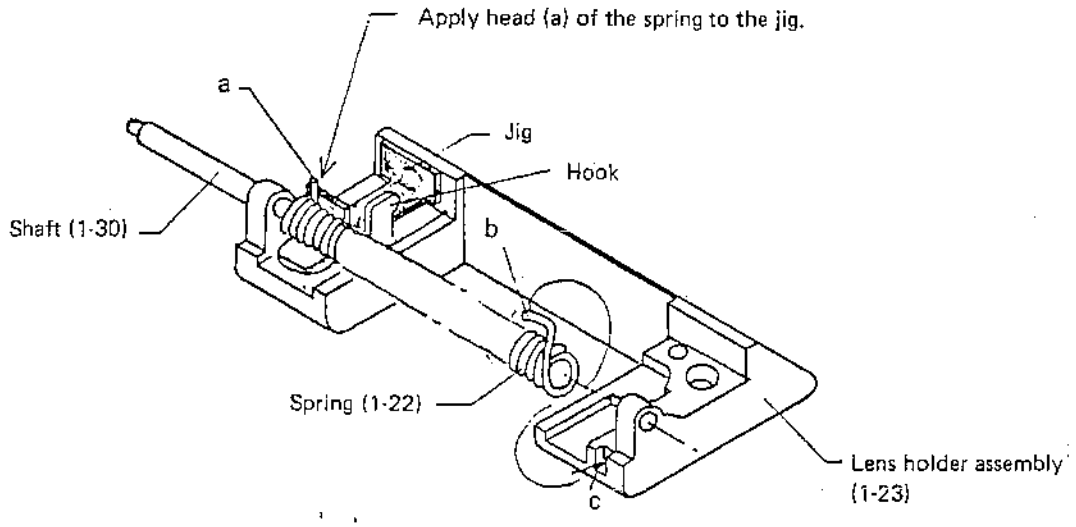
1.1 Apply the shaft (1-30) to the lens holder assembly (1-23), apply the spring (1-22) to the shaft, fit the jig, and hook the head (a) of the spring to the jig as shown in Fig. 16.

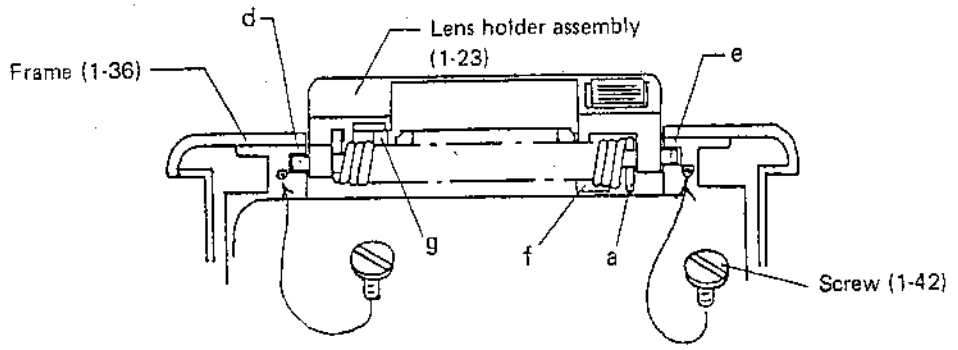
1.2 When the shaft (1-30) is applied in a half way, hold the head (b) in the end of the spring (1-22) with a pair of pliers, turn it toward the arrow 180°, hook the spring head (b) on the groove (c) of the lens holder assembly, and insert the shaft (1-30) into the other hole of the lens holder assembly (1-23).

1.3 With the spring end (a) applied to the wall of the farme (1-36), fit both ends (d and e) of the shaft into the grooves on the frame (1-36), and pushing the lens holder assembly (1-23), install it with two screws (1-42).

Make sure that the hook is placed in the square hole (b), and then, make sure that the lens holder assembly (1-23) lowers and operates with a click when the pin (g) is pushed from the other side.

Fig. 16


Apply head (a) of the spring to the jig.
a
Jig
Hook
Shaft (1-30)
b
Spring (1-22)
Lens holder assembly
(1-23)
c


d
Lens holder assembly
(1-23)
e
Frame (1-36)
g
f
a
Screw (1-42)

2. Connector assembly (1-2) and accessory shoe (1-8)

2.1 Through the square opening of the frame (1-36), connect pin board seat (1-37) to the pin board assembly (1-3), and install both the pin board seat (1-37) and pin board assembly (1-3) on the frame (1-36) with two screws (1-38).

2.2 Remove the left side screw (1-42), pass two lead wires (h and j) under the spring, and reinstall the screw (1-42).

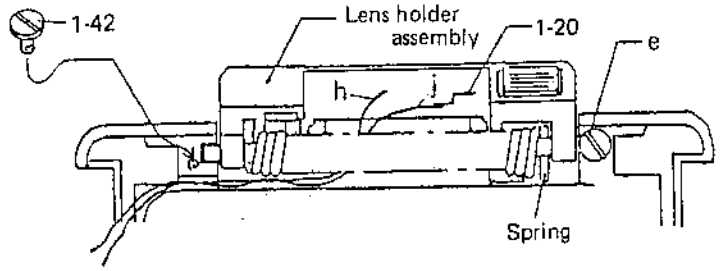
NOTE:

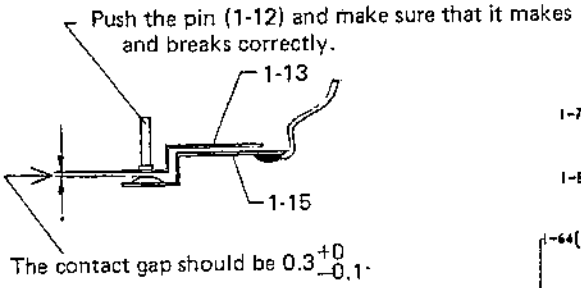
Be careful not to hold the lead wires with the screw.

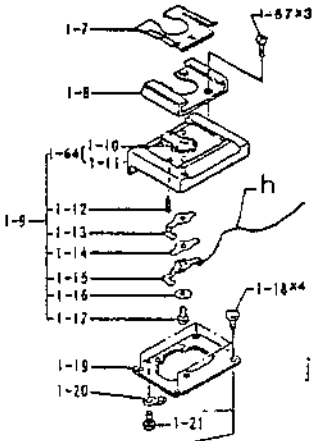
2.3 Solder and connect the lead wire (h) to the bottom of the contact (1-15), solder and connect the lead wire (j) to the contact (1-20), and install the contact (1-20) on the base plate (1-19) with the screw (1-21).

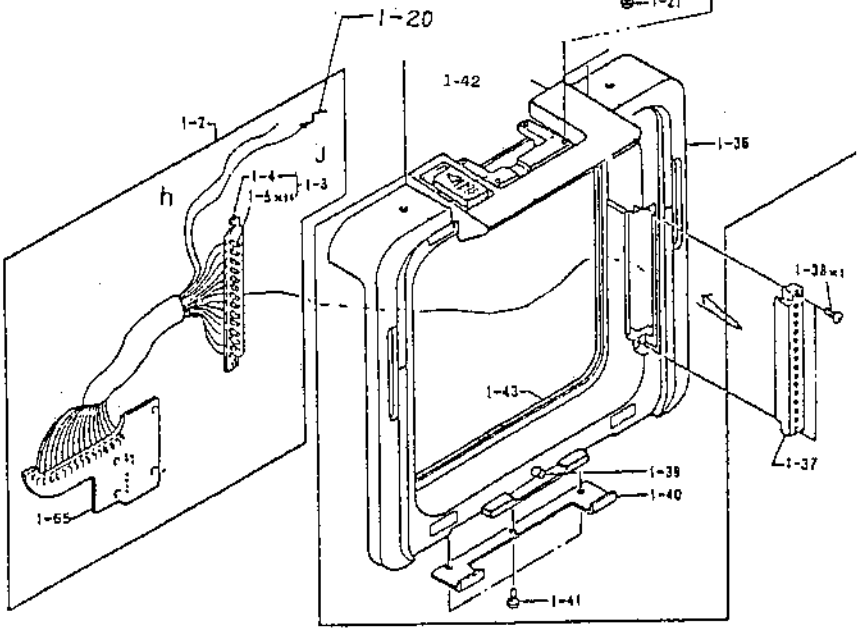
2.4 Install the contact seat assembly (1-9), accessory shoe (1-8) and shoe cover (1-7) in that order.

Fig. 17


1-42
Lens holder assembly
1-20
e
h
j
Spring


Push the pin (1-12) and make sure that it makes and breaks correctly.
1-13
1-15
The contact gap should be 0.3 +0 −0.1.


1-7
1-8
1-10
1-11
1-12
1-13
1-14
1-15
1-16
1-17
1-19
1-20
1-21
h
j


1-20
1-42
1-7
J
h
1-4
1-3
1-36
1-38
1-43
1-37
1-39
1-40
1-65
1-41

3. Forming lead wires and installing left shift holder assembly (1-47) and right shift holder assembly (1-55)

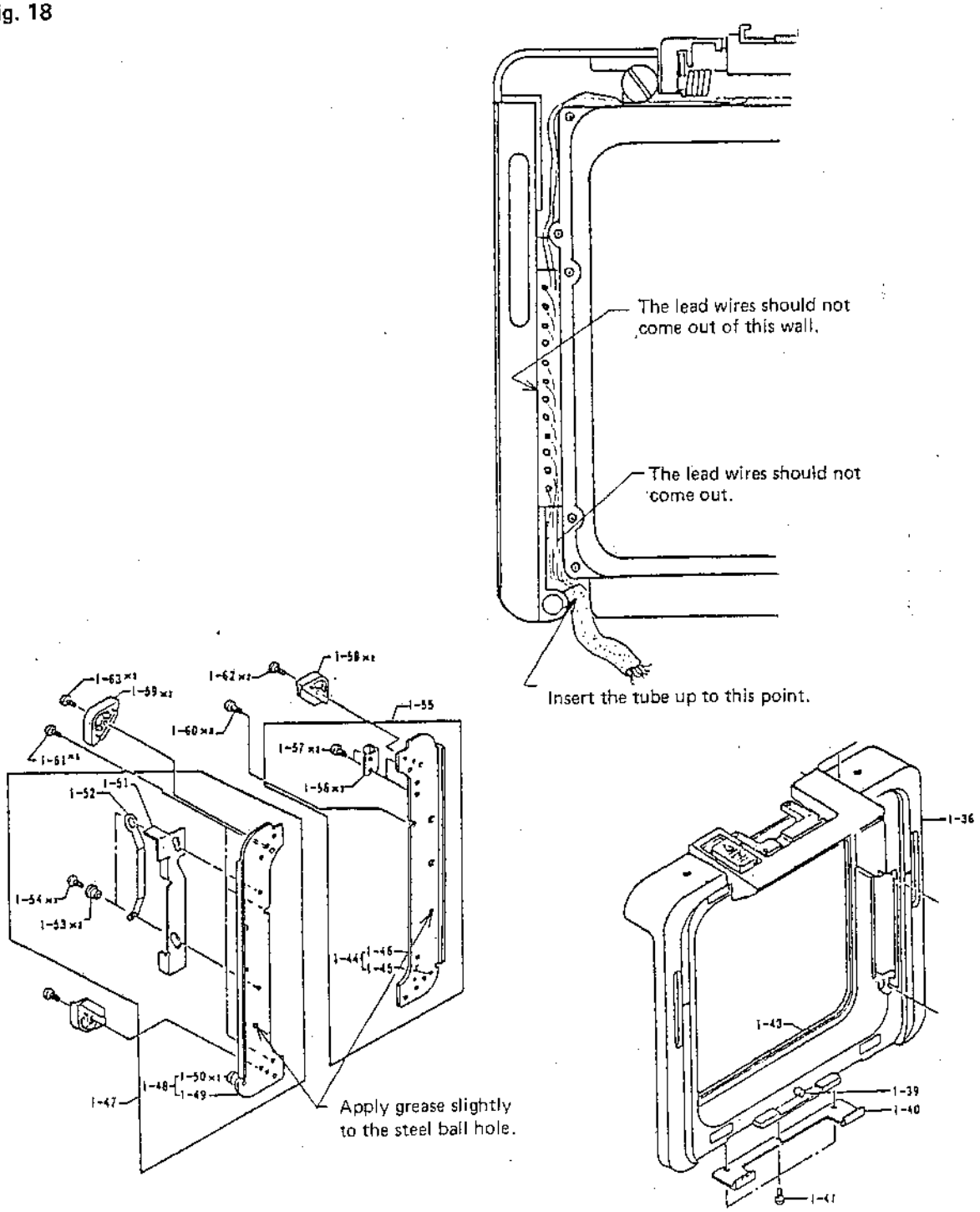
3.1 Accommodate the lead wires into the groove on the frame with the lead wires stretched tightly.

3.2 Install the right shift holder assembly (1-55) with three screws (1-60) carefully so that the lead wires are not held in between the frame and right shift holder assembly.

3.3 Install the left shift holder assembly (1-47) in the same manner as the right shift holder assembly with three screws (1-61).

3.4 Securely fit four positioning bosses of two bellows guides (1-58) and two bellows guides (1-59) into the holes on the shift holder assemblies, and install the bellows guides (1-58 and 1-59) on the right and left shift holder assemblies (1-55 and 1-47) with two screws (1-62) and two screws (1-63) respectively.

Fig. 18


The lead wires should not come out of this wall.
The lead wires should not come out.
Insert the tube up to this point.
Apply grease slightly to the steel ball hole.

4. Combining the shift base assembly (2-21) with the carrier base (3-2)

4.1 Install the shift lock lever assembly (3-36) on the carrier base (3-2) with two screws (3-35) securely.

4.2 Screw the lock knob (2-29) into the shift base assembly (2-21), secure it with the screw (2-33). [Even after tightening this screw (2-33), the lock knob turns but it does not come out.]

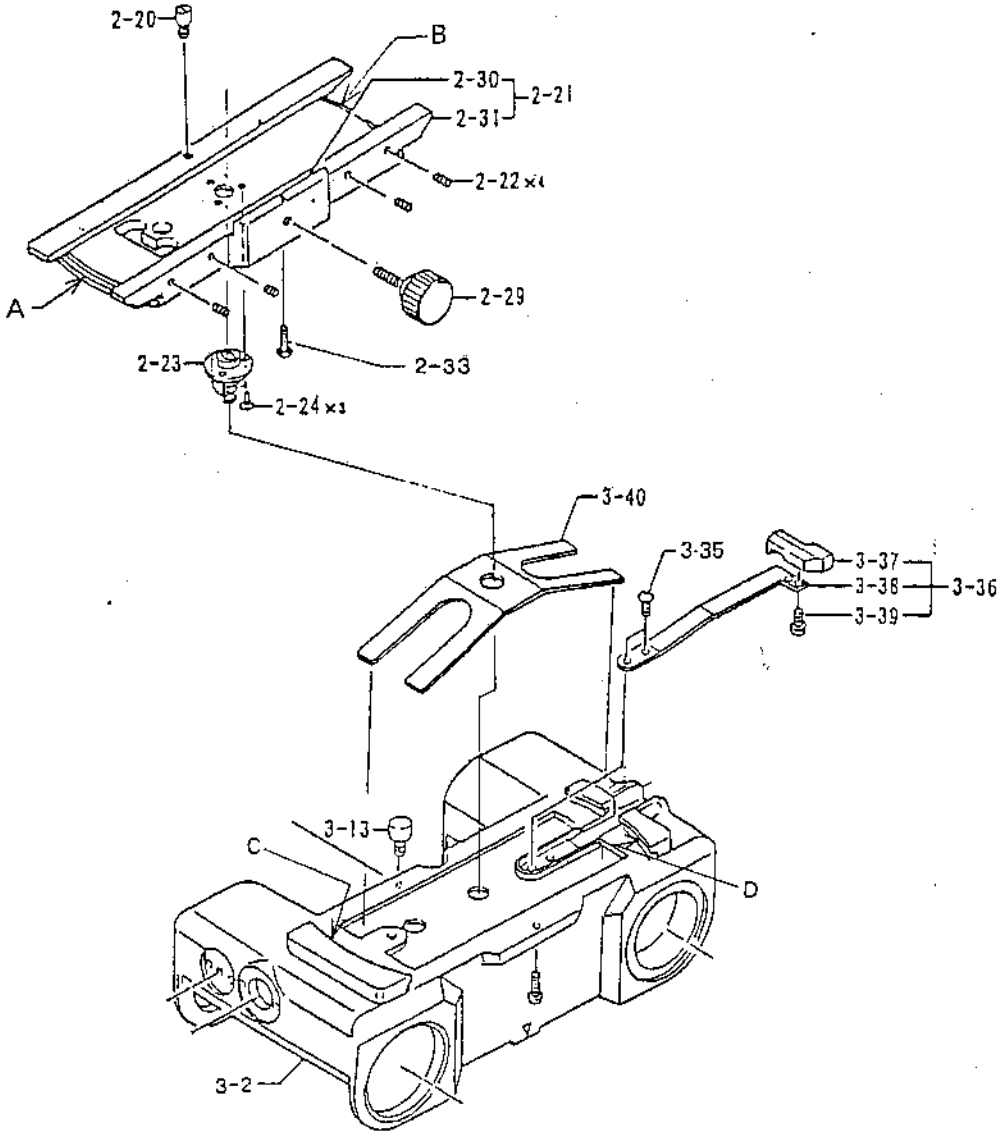
4.3 Fit the leaf spring (3-40) to the carrier base (3-2), insert the guide shaft (2-23) into the holes on the leaf spring (3-40) and carrier base, and pushing it hard at the position where it is crossed in 45°, fit portions A and B of the shift base assembly (2-21) to portions C and D of the carrier base.

4.4 Turn the shift base assembly (2-21) slowly, and install the screw (3-13) when the shift lock lever is locked with a click.

Push down the lock lever, turn the shift base assembly (2-21) slowly to the left and right, and make sure that it operates smoothly without any dragging.

Fig. 19

Thoroughly clean portions A, B, C and D, and apply grease slightly.



5. Combining the U-arm (2-15) with the shift base assembly (2-21)

5.1 Thoroughly clean portion A of the U-arm (2-15), portion B of the shift base assembly (2-21) and adjuster plate (2-17), and apply grease slightly.

5.2 Stick the adjuster plate (2-17) to the U-arm (2-15) at portion A. It sticks as grease has been applied.

NOTE:

The U-arm (2-15) and shift base assembly (2-21) have been slid and adjusted by means of a lapping.

When replacement is required, replace both the U-arm (2-15) and shift base assembly (2-21) simultaneously.

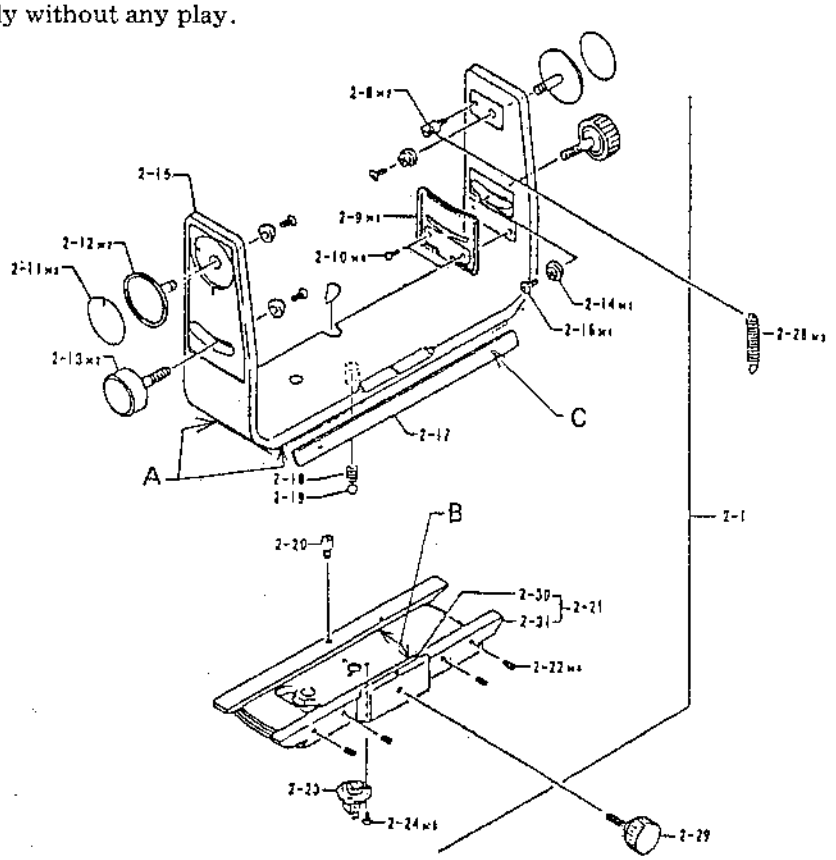
5.3 Apply grease to the spring (2-18) and steel ball (2-19), and insert them into the U-arm (2-15).

5.4 Fit the U-arm (2-15) to portion B of the shift base assembly (2-21), and positioning the notch D, securely install the screw (2-20).

5.5 Position the adjuster plate evenly in the center between both sides, and install four screws (2-22). These two screws in both ends of the adjuster plate are applied to recess (C) of the adjuster plate, preventing slide out of the adjuster plate.

Adjust tighteness of the screws (2-22) properly so that the shift base assembly operate smoothly without any play.

Fig. 20



6. Support (2-2)

6.1 Match the index of two shafts (2-12), and insert them into the holes on the U-arm (2-15), apply two supports (2-2) to the shafts, and secure them with two screws (2-5).

6.2 Fit two spacers (2-14) to two click plates (2-9), apply two springs (2-6) and two ball guides (2-7) to the holes on the supports, and further, apply two steel balls (2-32) to the ball guides (2-7).

NOTE:

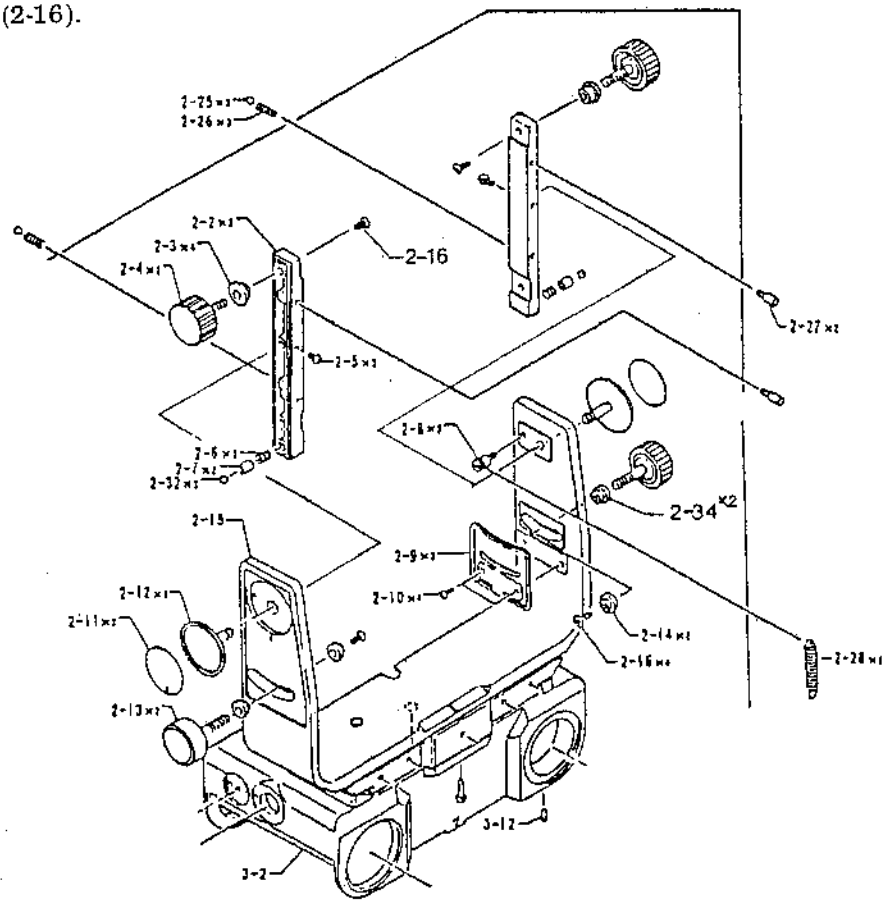
When the click plates (2-9) are installed, the click hole must be in the left side.

To balance both sides, steel balls must be applied to both sides.

6.3 Hold the supports to which the steel balls have been applied with your hand, locate it in the center of the click plate, apply the collar (2-34) to the tightener knob assembly (2-13), and through the spacer (2-14) fitted to the click plate (2-9), screw the tightener knob assembly (2-13) into the support (2-2) from outside of the U-arm (2-15). Now, secure the tightener knob assembly (2-13) with the screw (2-16).

6.4 Apply the spacer (2-3) to the tightener knob assembly (2-4), screw the tightener knob assembly (2-4) to the support (2-2), and secure the tightener knob assembly (2-4) with the screw (2-16).

Fig. 21



7. Frame assembly I (1-6)

7.1 Remove two index pins (2-27), loosen the tightener knobs, and raise both supports (2-2) straight ahead.

7.2 Apply the frame assembly I (1-6) to the supports in a half way down, insert the spring (2-26) and steel ball (2-25) to the left side support first, lower the frame assembly I (1-6) slightly to hold the spring and steel ball, and then, insert the spring (2-26) and steel ball (2-25) to the right side support.

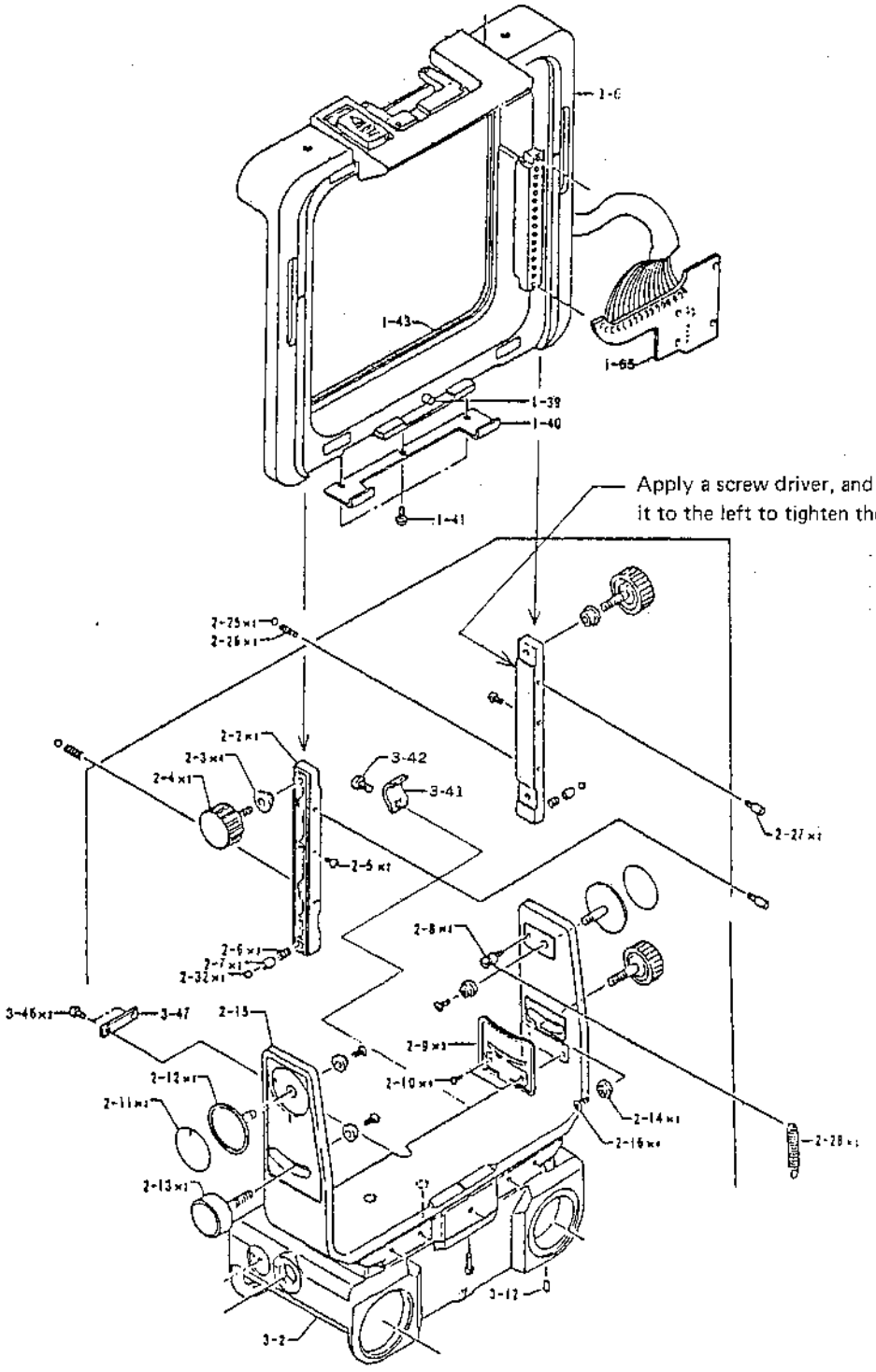
7.3 Match the holes of the left and right shift holders (1-46 and 1-49) with those on the supports, and install two index pins (2-27).

7.4 Clamp the lead wires of the connector assembly (1-65) with the cord clamps (3-41 and 3-47).

7.5 Make sure that the rising, falling and tilting operations can be made smoothly. Tighten the tightner knobs, and make sure that the selected positions can be locked securely.

7.6 Hook two springs (2-28) on two arbors (1-50) and two arbors (2-8).

Fig. 22


1-6
1-43
1-65
1-39
1-40
1-41
Apply a screw driver, and turn it to the left to tighten the screw.
2-25×1
2-26×1
2-2×1
2-3×4
2-4×1
3-42
3-41
2-27×1
2-5×1
2-6×1
2-7×1
2-32×1
2-8×1
3-46×1
3-47
2-15
2-9×1
2-10×1
2-12×1
2-11×1
2-14×1
2-16×1
2-28×1
2-13×1
3-17
3-2

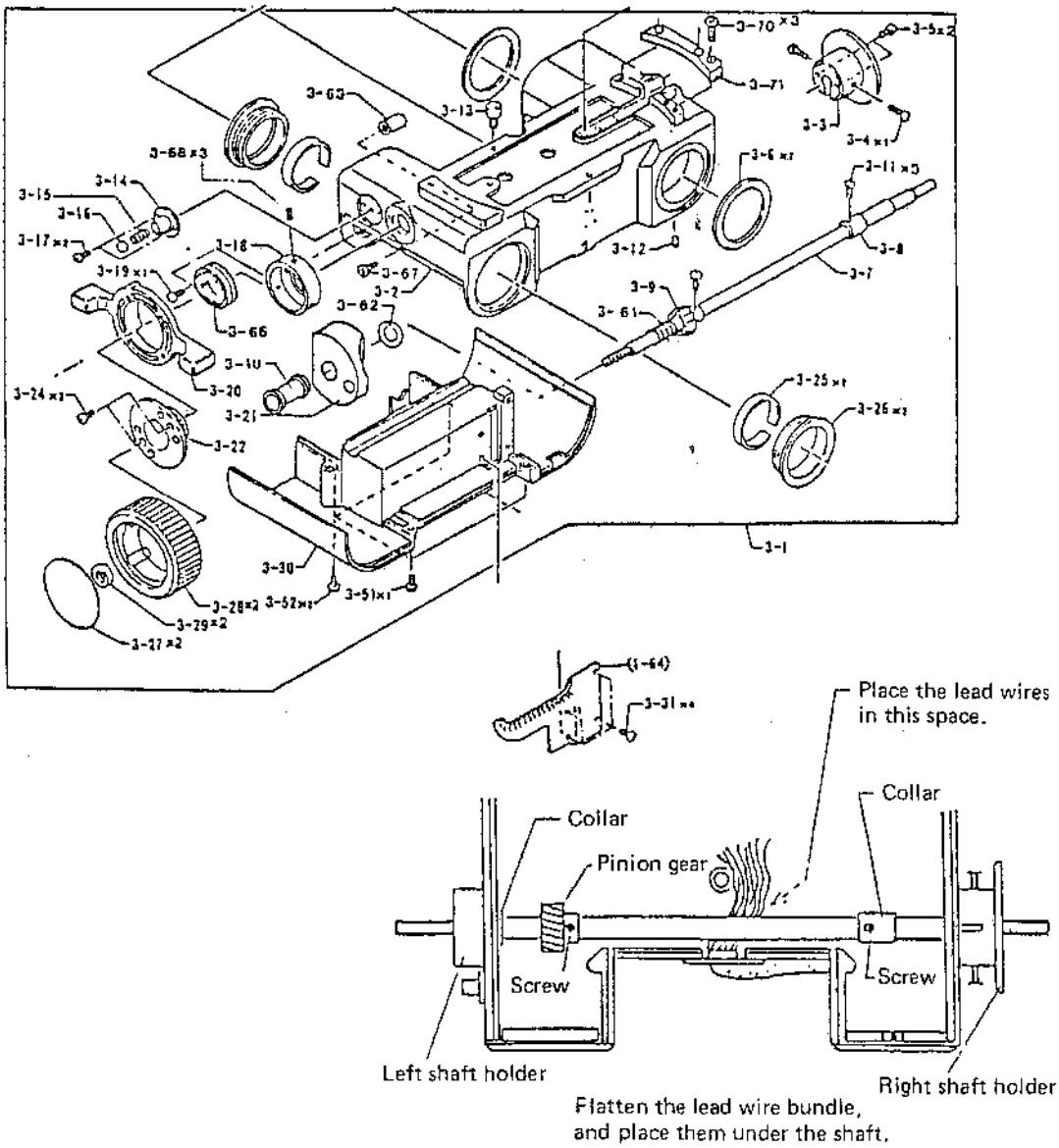
8. Carrier base assembly (3-1)

8.1 Screw two screws (3-4) into the right shaft holder (3-3) in a half way, and securely install the right shaft holder (3-3) with two screws (3-5).

Apply the tightener shaft (3-7) to the carrier base from the left side in a half way, apply the lock base (3-21), washer (3-62), spring (3-61), pinion (3-9) and collar (3-8) in that order, place the lead wires of the connector assembly (1-65) under the tightener shaft (3-7), and insert the head of the tightener shaft into the right shaft holder (3-3).

8.2 Place the pinion gear and collar in their positions, and after applying screw locking agent (Alontight) to the threads, securely install them with the screw.

Fig. 23



8.3 Insert the nut (3-63) into the guide hole of the lock base (3-21), and securely install the left shaft holder (3-18) with two screws (3-19). Now, apply the shaft holder (3-66) and install it temporarily with three screws (3-68).

8.4 Apply the lock base (3-21) to the shaft, insert the spring (3-15) and steel ball (3-16) into the stopper (3-14), and apply the focusing lock lever (3-20).

Now, holding the steel ball, screw the screw (3-22) into the shaft holder (3-66), and after matching the holes at a proper position, tighten two screws (3-24) temporarily.

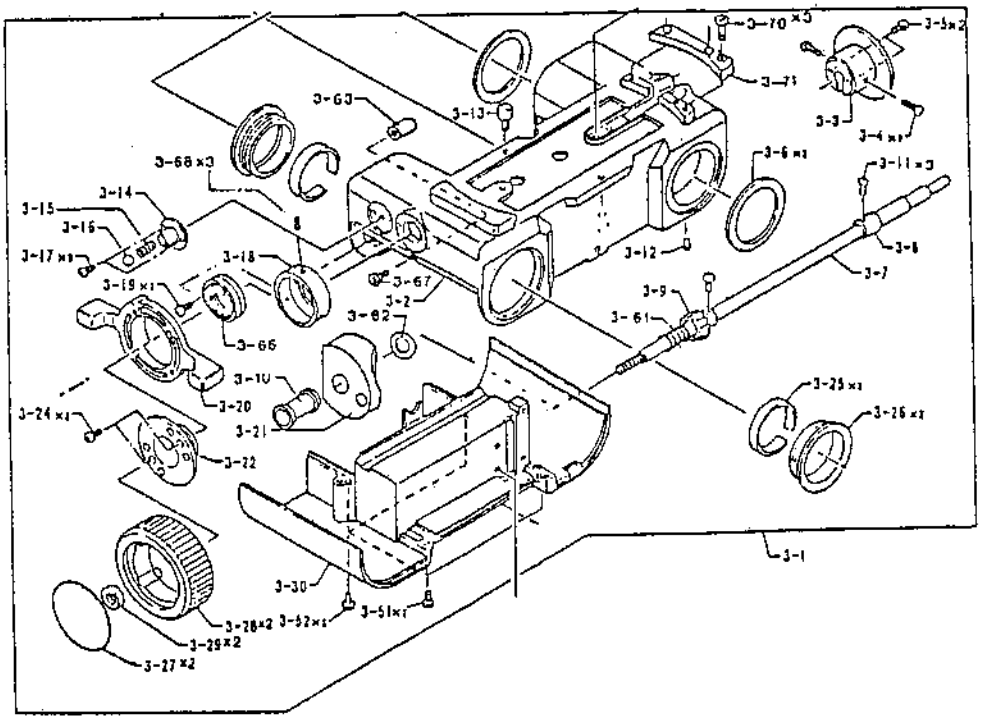
8.5 Securely screw the left and right focusing knobs (3-28) into the shaft.

Now, turn the focusing knob one side by one side slowly, and make sure that both the focusing knobs turn smoothly. Then, tighten two screws (3-4) evenly and gradually, and adjust the shaft so that it operates smoothly without any play.

NOTE:

Thoroughly clean the shaft holder (3-66) and threads of the screw (3-22) and apply grease (Helicolube) slightly.

Fig. 24



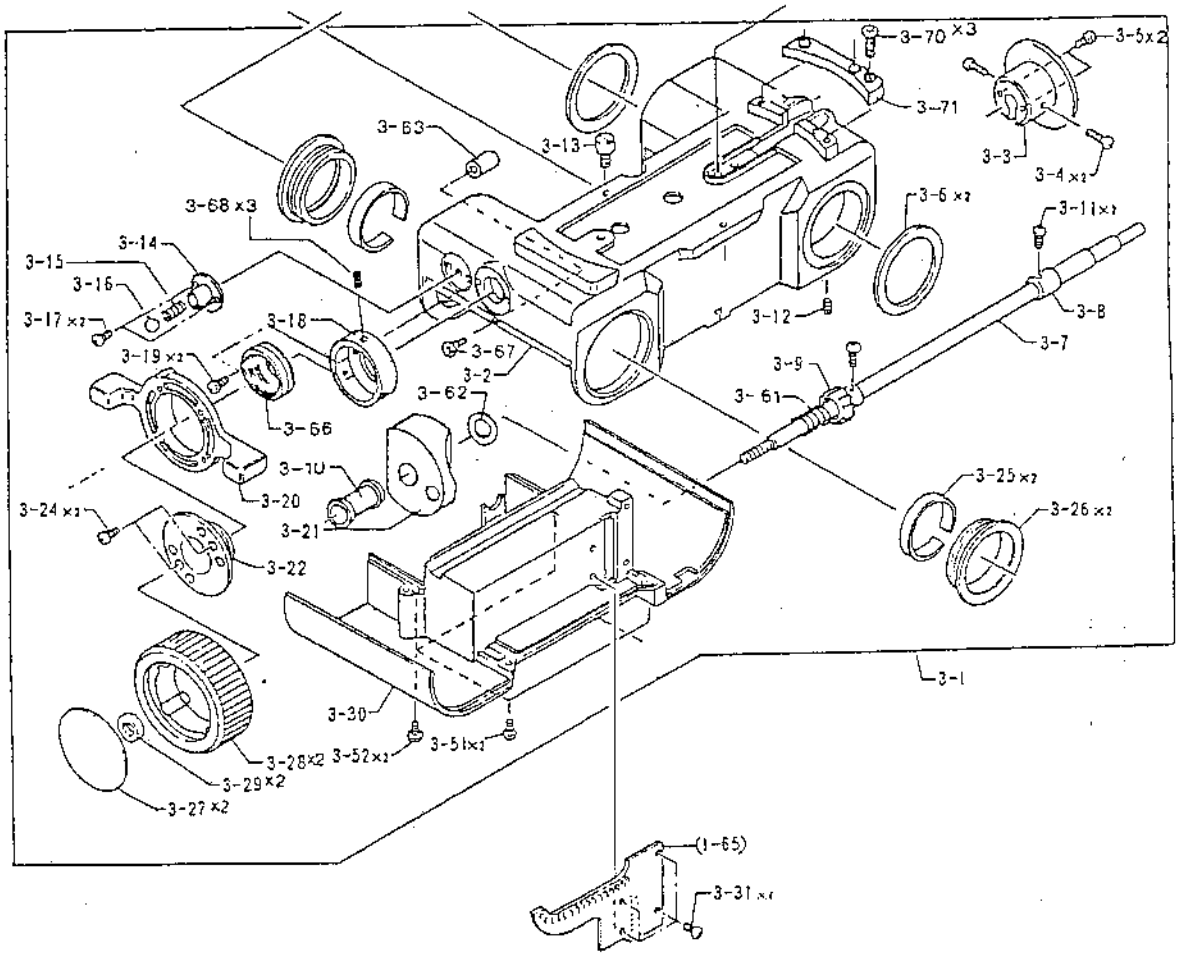
8.6 Install the connector assembly (1-65) on the base cover (3-30) with four screws (3-31) carefully so that the lead wires are not twisted, and then, install them on the carrier base (3-2) with two screws (3-51) and two screws (3-52).
Providing the lead wires with a slackness in between the frame assembly and carrier base, hold the lead wires with the cord clamps (3-41 and 3-47).

8.7 Fit the mount to the rails slowly, connect the synchro socket assembly (4-40), and install the bellows.

8.8 Repeat focusing, and changing tightening positions of the lock screw and lock lever, adjust the locking system properly so that the focusing becomes remarkably heavy when the focusing lock lever (3-20) is locked and that the gocusing can be made smoothly when the focusing lock lever (3-20) is released.

8.9 After completing the adjustment, make sure that everything is normal. Then, apply screw locking agent (Alontight) to the threads of the shaft, install two nuts (3-29) on both ends, securely tighten them with a box spanner, and install two cover plates (3-27) with adhesive.
NOTE:
Be careful not to allow the adhesive coming out harming the appearance.

Fig. 25


3-70 ×3
3-5×2
3-71
3-3
3-4 ×2
3-63
3-13
3-68 ×3
3-14
3-15
3-16
3-17 ×2
3-18
3-19 ×2
3-66
3-67
3-2
3-62
3-6 ×2
3-11×1
3-8
3-7
3-12
3-9
3-61
3-10
3-20
3-21
3-24 ×1
3-22
3-25 ×2
3-26 ×2
3-1
3-30
3-51×1
3-52×1
3-28×2
3-29×2
3-27 ×2
(1-65)
3-31 ×1

9. Light shielding plate assembly (5-1), mirror assembly (5-8) and stop lever (5-118)

9.1 Install two shaft holders (5-25) on the shaft holes of the light shielding plate assembly (5-1) with adhesive. First, apply the shaft (5-12) of the mirror assembly (5-8) to the groove A of the main body. Next, apply the shaft (5-4) to the groove B, and then, insert the shaft (5-26) from outside of the main body. When the mirror assembly (5-8) has a play toward the shaft direction, apply washer (5-24) to minimize the play so that both sides of the light shielding plate do not come into contact with the seat frame assembly (4-19).

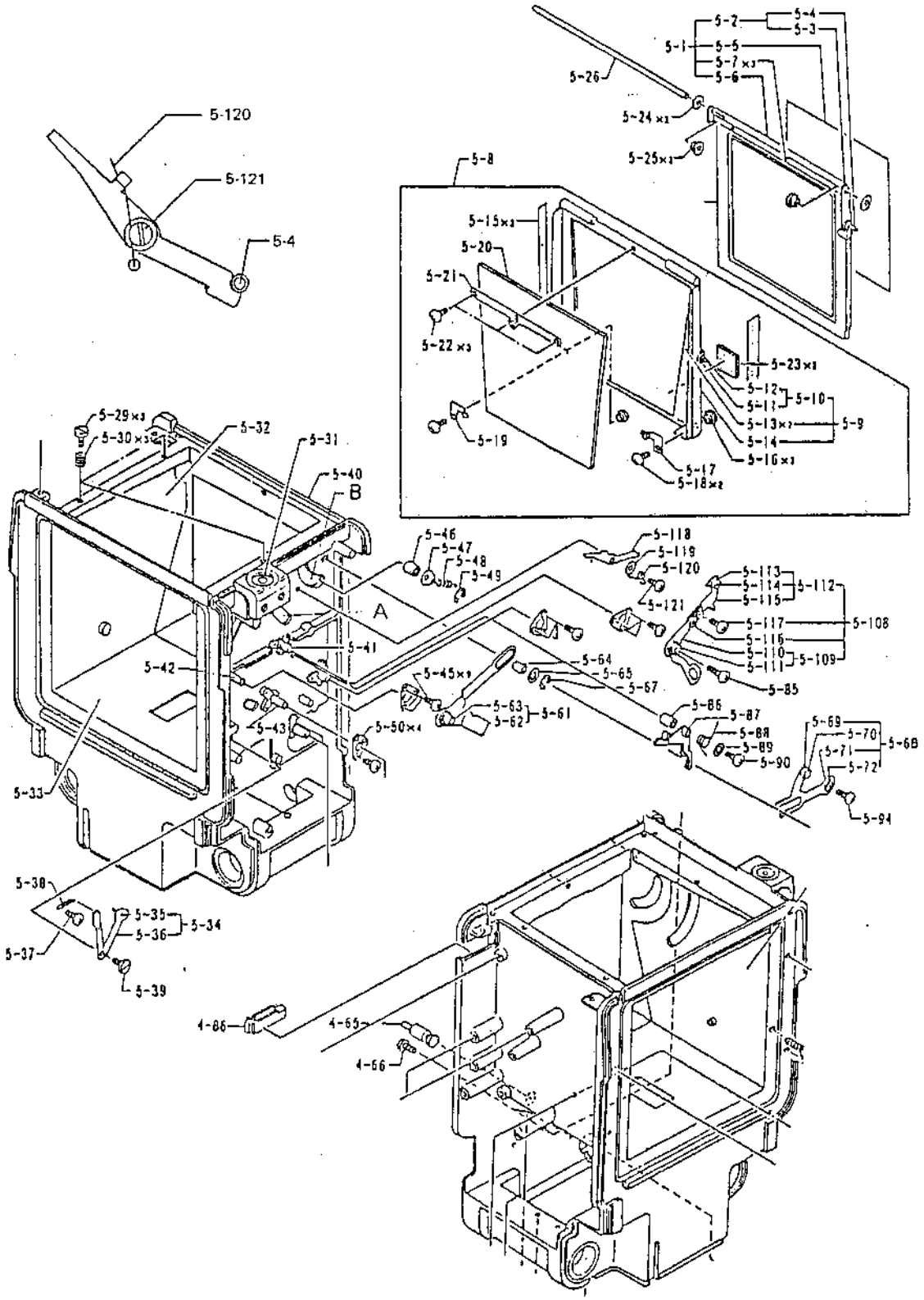
NOTE:

Handle both the mirror assembly (5-8) and light shielding plate assembly (5-1) so as not to deform them.

9.2 Install the stopper (4-86) on the main body with adhesive to stop the shaft.

9.3 Install the stop lever (5-118) with the screw (5-121), and install the spring (5-120). When the mirror and light shielding plate come down, the stop lever (5-118) and shaft (5-4) of the light shielding plate becomes as shown in Fig. 26.

Fig. 26


5-120
5-121
5-4
5-26
5-24 x1
5-25 x1
5-7
5-1
5-5
5-7 x3
5-6
5-2
5-4
5-3
5-8
5-15 x3
5-20
5-21
5-22 x3
5-19
5-23 x1
5-12
5-11
5-10
5-13 x2
5-9
5-14
5-16 x1
5-17
5-18 x2
5-29 x3
5-30 x3
5-32
5-31
5-40
B
A
5-46
5-47
5-48
5-49
5-118
5-119
5-120
5-121
5-113
5-114
5-115
5-112
5-117
5-116
5-110
5-111
5-109
5-108
5-85
5-41
5-42
5-45 x2
5-64
5-65
5-67
5-63
5-62
5-61
5-86
5-87
5-88
5-89
5-90
5-69
5-70
5-71
5-72
5-68
5-94
5-43
5-50 x4
5-33
5-38
5-35
5-36
5-34
5-37
5-39
4-66
4-65
4-66

10. Roller (5-46), roller (5-64), reflector assembly (5-59), drive lever assembly (5-61), interlock lever assembly (5-74), mirror drive assembly (8-1) and gear assembly (5-123)

10.1 Apply the roller (5-46) to the roller shaft (5-4) of the light shielding plate assembly (5-1), place the washer (5-47) on the roller (5-46), and secure them with the E-clip (5-49). Now, install the spring (5-48) as shown in Fig. 27.

10.2 Apply the roller (5-64) to the roller shaft (5-12) of the mirror assembly (5-8), fit the drive lever assembly (5-61) to the shaft (5-42) together with the roller, place the washer (5-65) on the roller, and secure them with the E-clip (5-67).

10.3 Fit the reflector assembly (5-57) to the shaft (5-43), secure it with the screw (5-66), and apply the roller (5-104) to the roller (5-107).

10.4 Apply the spring (5-73) to the sleeve (5-75) of the interlock lever assembly (5-74), hook one end (A) to the interlock lever and the other end to the drive lever, fit them to the shaft (5-42), fit the cam groove to the roller, place the washer, and secure them with the E-clip (5-82).

Tighten the screw (5-91) on the shaft (5-42) to secure the lever.

10.5 Install the mirror drive assembly (8-1) with two screws (8-11). The tightening torque is 2.2 to 2.4 kg-cm.

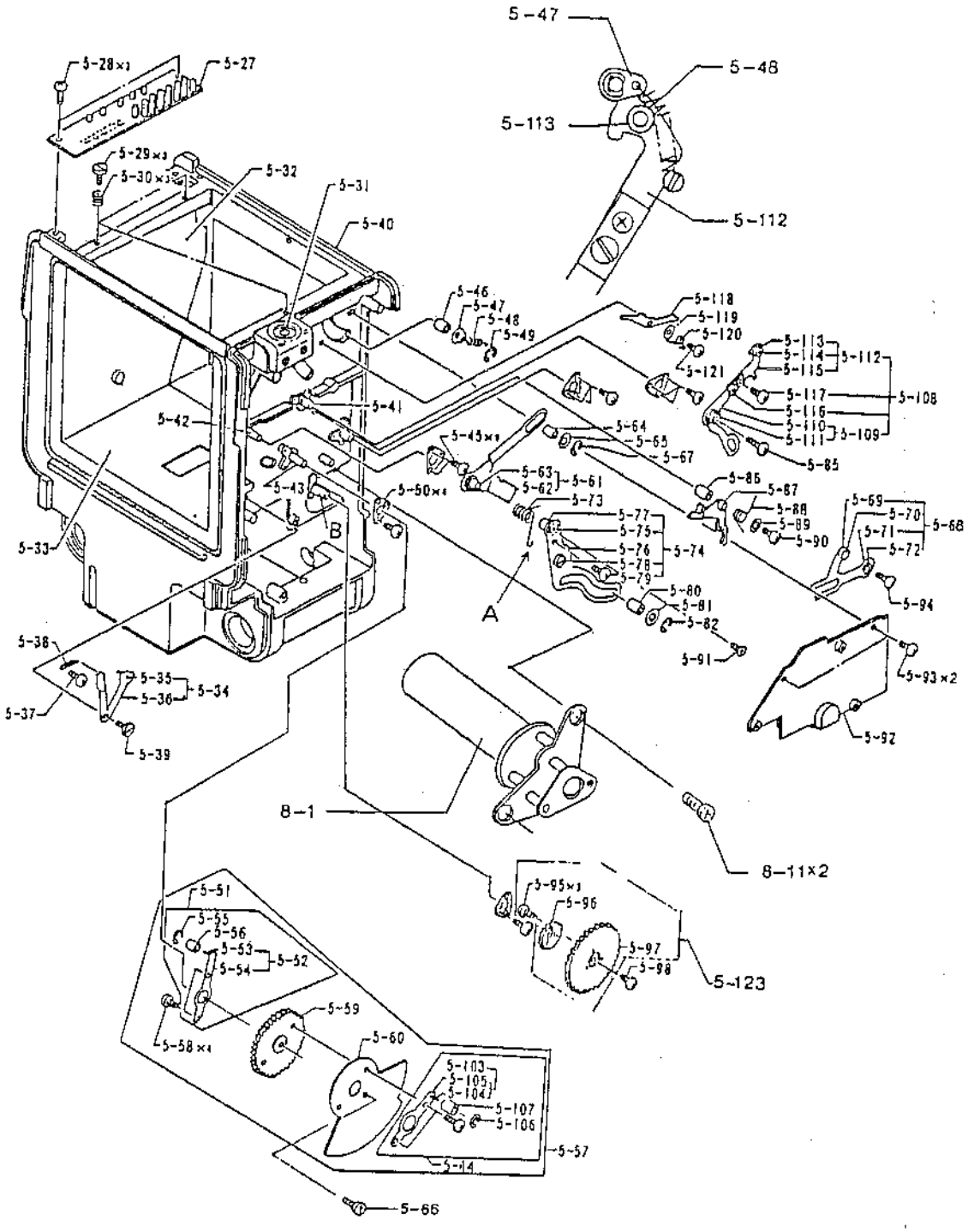
NOTE:

Be careful not to hold the lead wires under the mirror drive assembly.

Fit the gear assembly (5-123) to shaft (B), intermesh the gear assembly with the gears in the motor side and reflector assembly side, and secure the gear assembly with the screw (5-98).

Turn the gear (5-97) with your hand, and make sure that each gear and each lever operate smoothly and that each part is installed correctly.

Fig. 27


5-47
5-48
5-113
5-112
5-28×3
5-27
5-29×3
5-30×3
5-32
5-31
5-40
5-46
5-47
5-48
5-49
5-118
5-119
5-120
5-121
5-113
5-114
5-115
5-112
5-117
5-116
5-110
5-111
5-108
5-109
5-85
5-42
5-41
5-43×3
5-64
5-65
5-67
5-63
5-62
5-61
5-73
5-50×4
5-43
B
A
5-33
5-85
5-87
5-88
5-89
5-90
5-77
5-75
5-76
5-78
5-79
5-74
5-80
5-81
5-82
5-91
5-69
5-70
5-71
5-72
5-68
5-94
5-93×2
5-92
5-38
5-35
5-36
5-34
5-37
5-39
8-1
8-11×2
5-95×3
5-96
5-97
5-98
5-123
5-51
5-55
5-56
5-53
5-54
5-52
5-58×4
5-59
5-60
5-103
5-105
5-104
5-107
5-106
5-57
5-14
5-66

11. Light shielding wall assembly (4-1), seat frame assembly (4-19) and lens mount (4-67)

11.1 Install the light shielding wall assembly (4-1) on the main body with three screws (4-14).

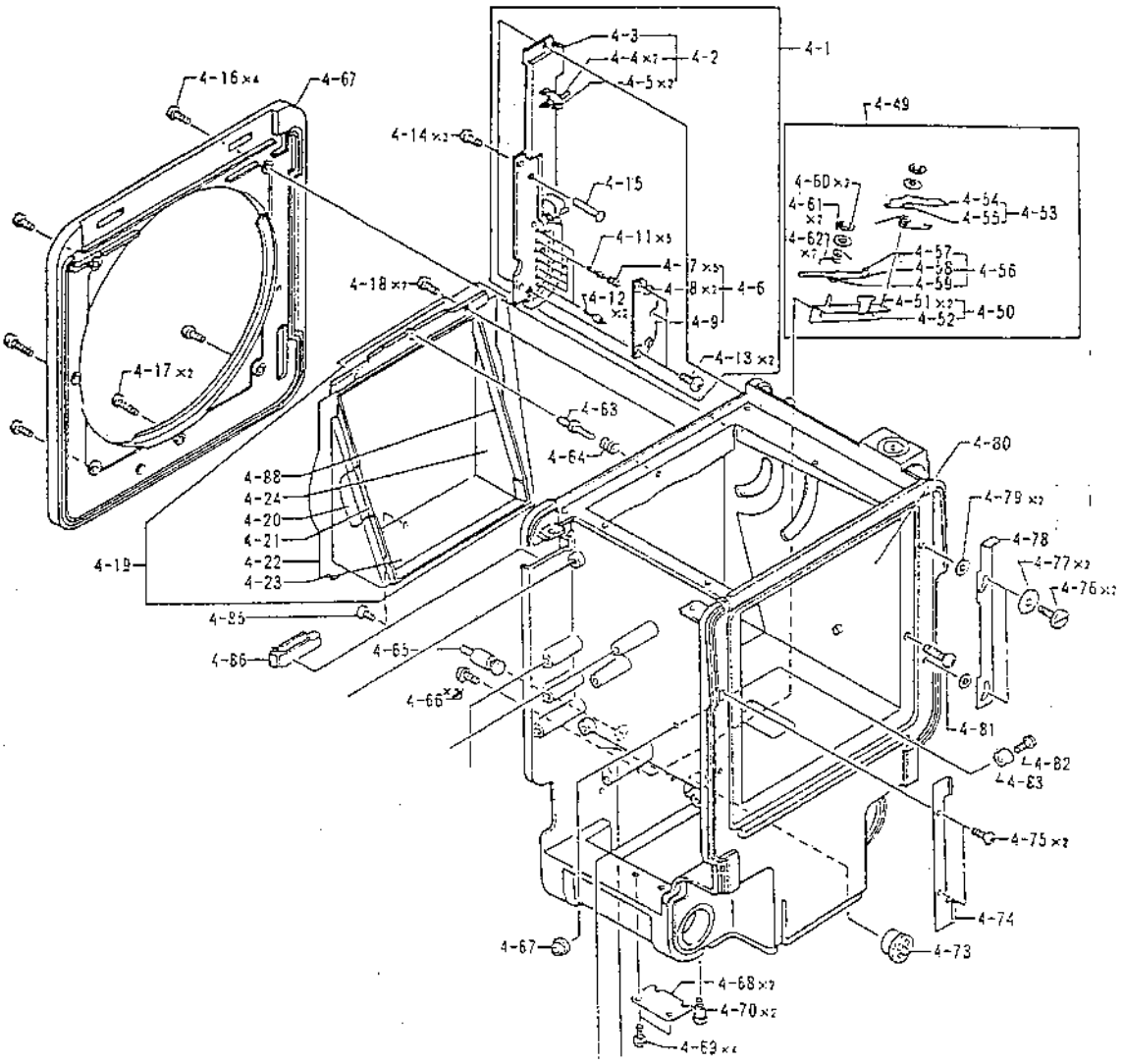
NOTE:

Carefully install the light shielding wall assembly so that the lead wires will not be twisted or disconnected.

11.2 Place the spring (4-64) and interlock pin (4-63) to the holes on the main body, and install the seat frame assembly (4-19) on the main body with two screws (4-18) and screw (4-85). Now, make sure that the interlock pin operates smoothly.

11.3 Install the lens mount (4-67) on the main body with two screws (4-16) and three screws (4-17).

Fig. 28


4-1
4-2
4-3
4-4 ×7
4-5 ×2
4-6
4-7 ×2
4-8 ×2
4-9
4-10 ×2
4-11 ×3
4-12 ×2
4-13 ×2
4-14 ×2
4-15
4-16 ×4
4-17 ×2
4-18 ×7
4-19
4-20
4-21
4-22
4-23
4-24
4-25
4-26
4-27
4-28
4-29
4-30
4-31
4-32
4-33
4-34
4-35
4-36
4-37
4-38
4-39
4-40
4-41
4-42
4-43
4-44
4-45
4-46
4-47
4-48
4-49
4-50
4-51 ×2
4-52
4-53
4-54
4-55
4-56
4-57
4-58
4-59
4-60 ×2
4-61 ×2
4-62 ×2
4-63
4-64
4-65
4-66 ×2
4-67
4-68 ×2
4-69 ×2
4-70 ×2
4-71
4-72
4-73
4-74
4-75 ×2
4-76 ×2
4-77 ×2
4-78
4-79 ×2
4-80
4-81
4-82
4-83
4-84
4-85
4-86
4-87
4-88

12. Adjustment of 45° mirror angle

· Adjustment of lever assembly (5-108) and interlock lever assembly (5-74)

12.1 Loosen the screw (5-117) and adjust the eccentric pin (5-116) so that heads of the roller (5-46) and lever (5-112) are in tight contact and there is no gap between them when the mirror and light shielding plate have completely come down and the roller (5-46) has engaged with the stop lever (5-118). Raise the light sheilding plate, lower it slowly, and make sure that the stop lever and roller are locked securely.

12.2 Set the camera on a 45° angle adjusting jig, and properly adjust the screw (4-81) so that the center of the image observed in a collimater is in the rated position.
When adjustment cannot be made by the screw (4-81), remove the left mirror holder (5-17), right mirror holder (5-19) and mirror holder (L) (5-21), remove the mirror, and insert a spacer (to be adhered) in between the mirror base (5-14) and mirror to adjust it.
The rated tolerance is within ±0.1°. It is, however, desirable that the image center is within the dioptric adjust circle of the collimater.

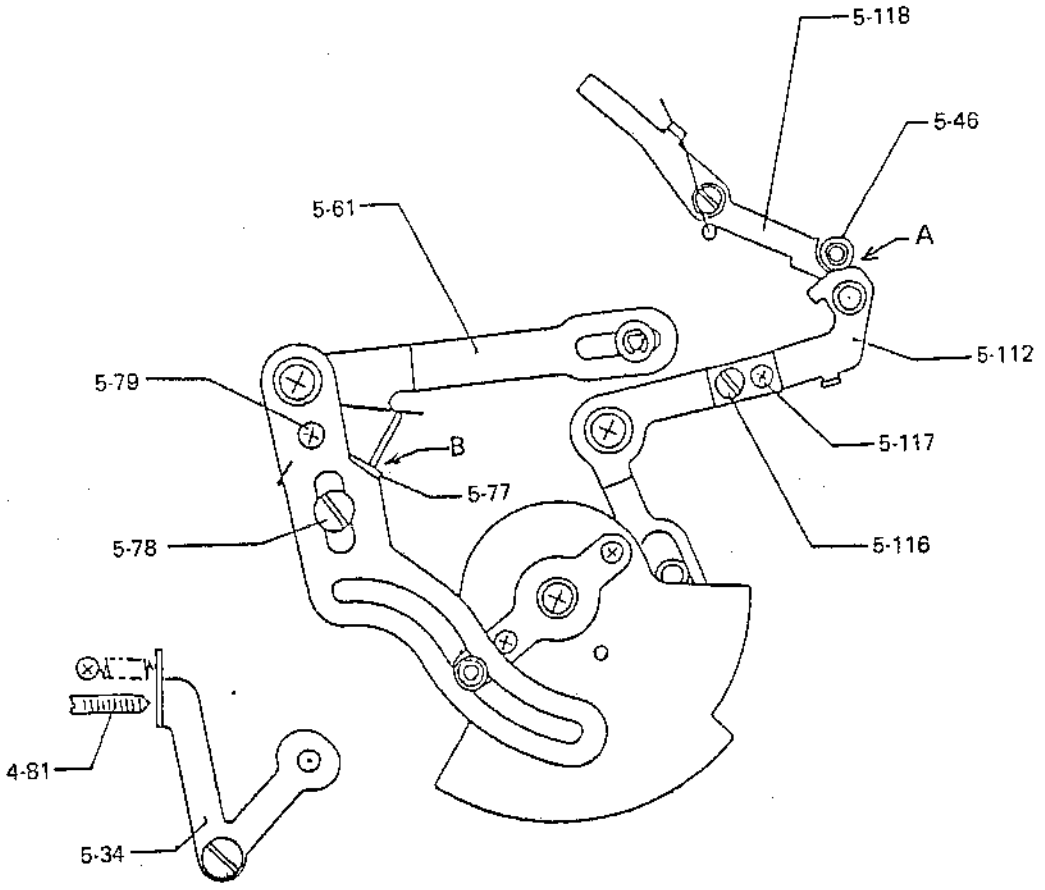
12.3 After completing the 45° angle adjustment, loosen the interlock lever locking screw (5-79) with the mirror come down completely, and adjust the eccentric pin (5-78) properly so that the adjust plate (5-77) is in contact with the interlock lever (5-74) and there is no play in between them.

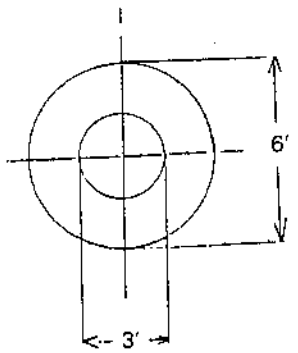
NOTE:

After completing the adjustment, be sure to lock the screw by applying screw locking agent.

When the above adjustment is not made completely, light may leak into the camera as the mirror position lowers when the mirror goes up.

Fig. 29





Gokosha Model 400mm collimater should be used.

Rating: When the collimater image center is within the field of view, the tolerance should be within 0.1°.

Dioptric adjust circle within the collimater

13. Light measuring board assembly (6-33), connector board assembly (4-72) and lever assembly (4-49)

13.1 Fit the stopper pin (4-65) and button (4-73) to the main body, and install the lever assembly (4-49) with two screws (4-66).

Push the button, and make sure that the stopper pin moves smoothly.

13.2 Install the light measuring board assembly (6-33) on the main body with two screws (6-34).

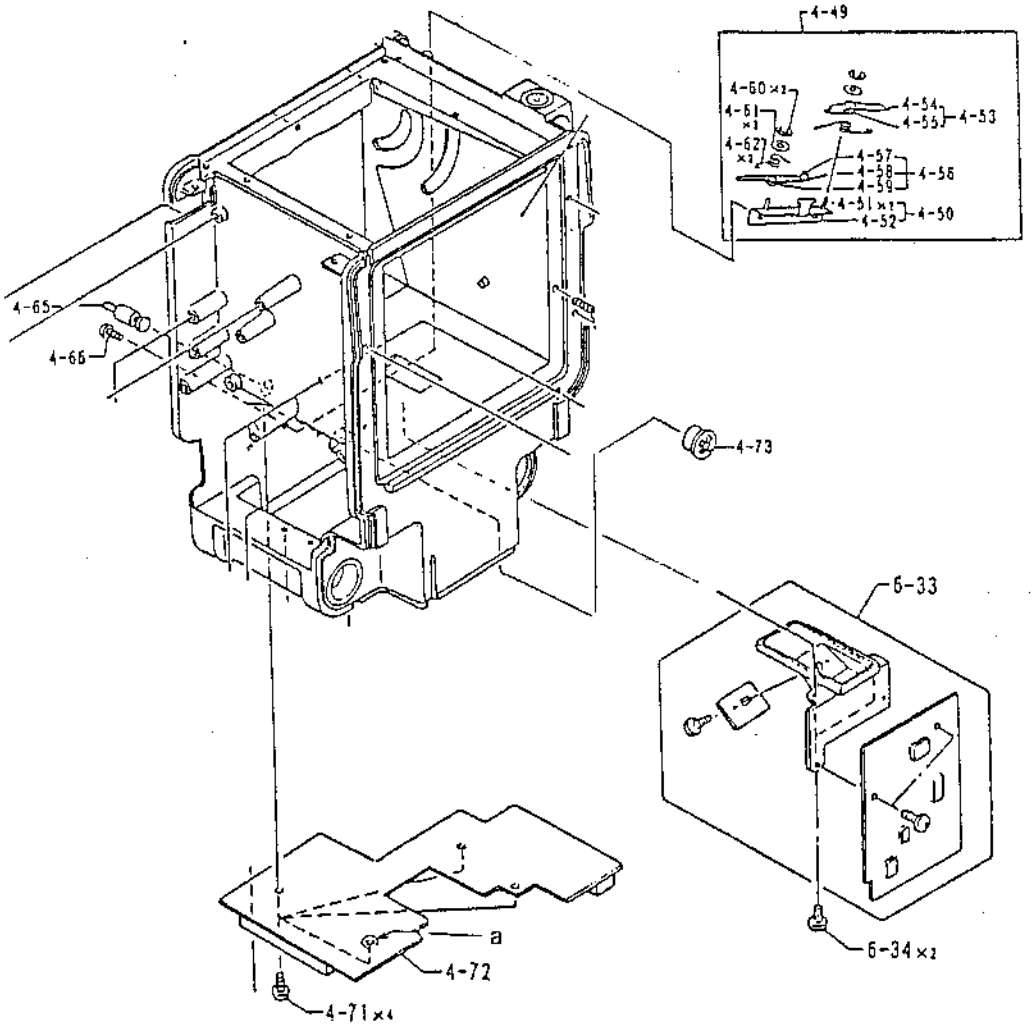
Make sure that the light measuring board assembly is not itlted or floated.

13.3 Install the connector board assembly (4-72) on the main body with four screws (4-71).

NOTE:

To prevent the circuit pattern in the opposite side of the installation hole (a) coming into contact with the boss on the main body, a Myler washer is applied. Use this Myler washer without fail.

Fig. 30



14. Mirror PCB assembly (5-100)

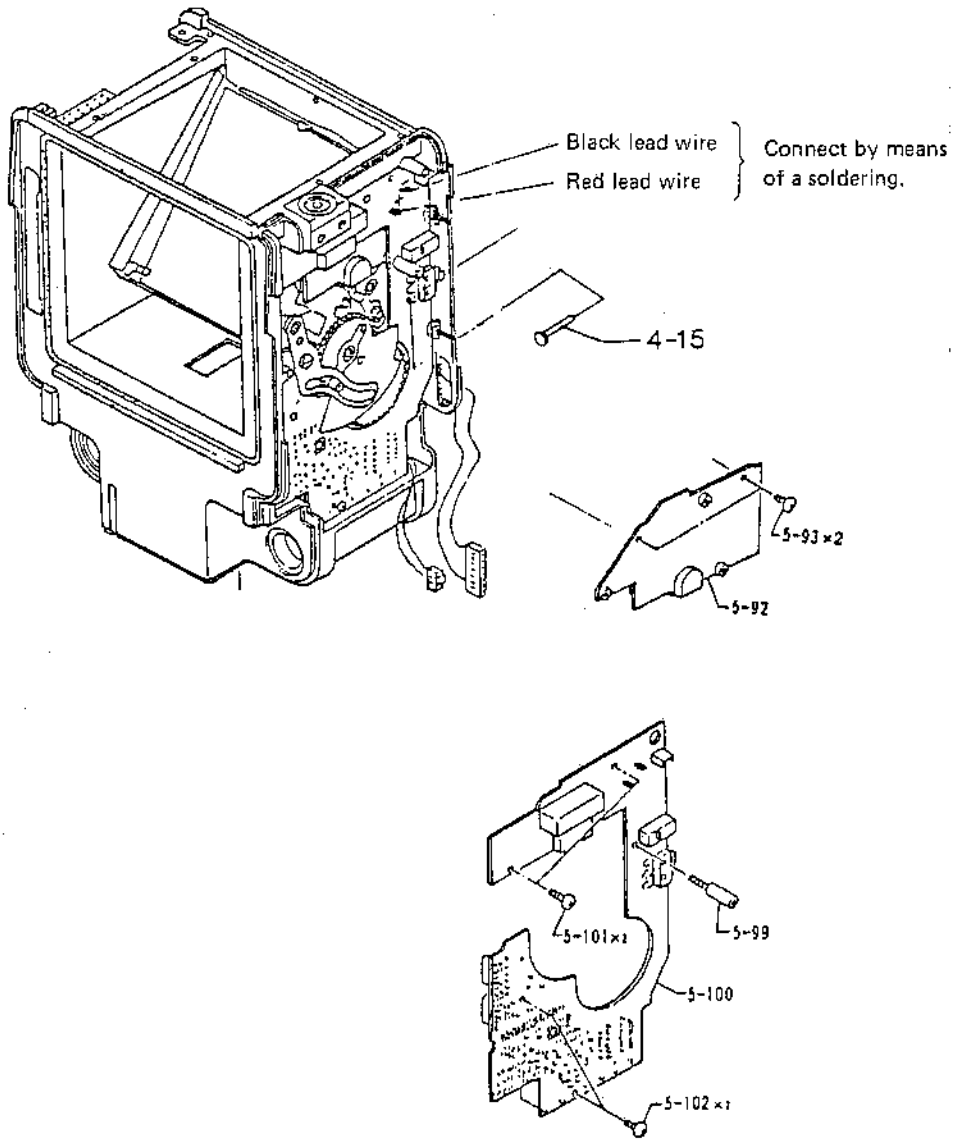
14.1 Install the light shielding wall (5-92) on the main body with two screws (5-93).

14.2 Connect the connectors of the pin board assembly (4-6) and mirror drive assembly (8-1) to two connectors on the back of the mirror PCB assembly (5-100) firmly.

14.3 Insert the pin (4-15) into the hole on the lens mount, insert the mirror PCB assembly (5-100) carefully under the interlock lever assembly (5-74), insert the mirror PCB assembly (5-100) further under the reflector (5-60), firmly connect the mirror PCB assembly (5-100) to the connector of the connector board, and secure it with two screws (5-101), two screws (5-102) and column (5-99).

Now, solder and connect the red and black lead wires to the mirror PCB assembly (5-100).

Fig. 31



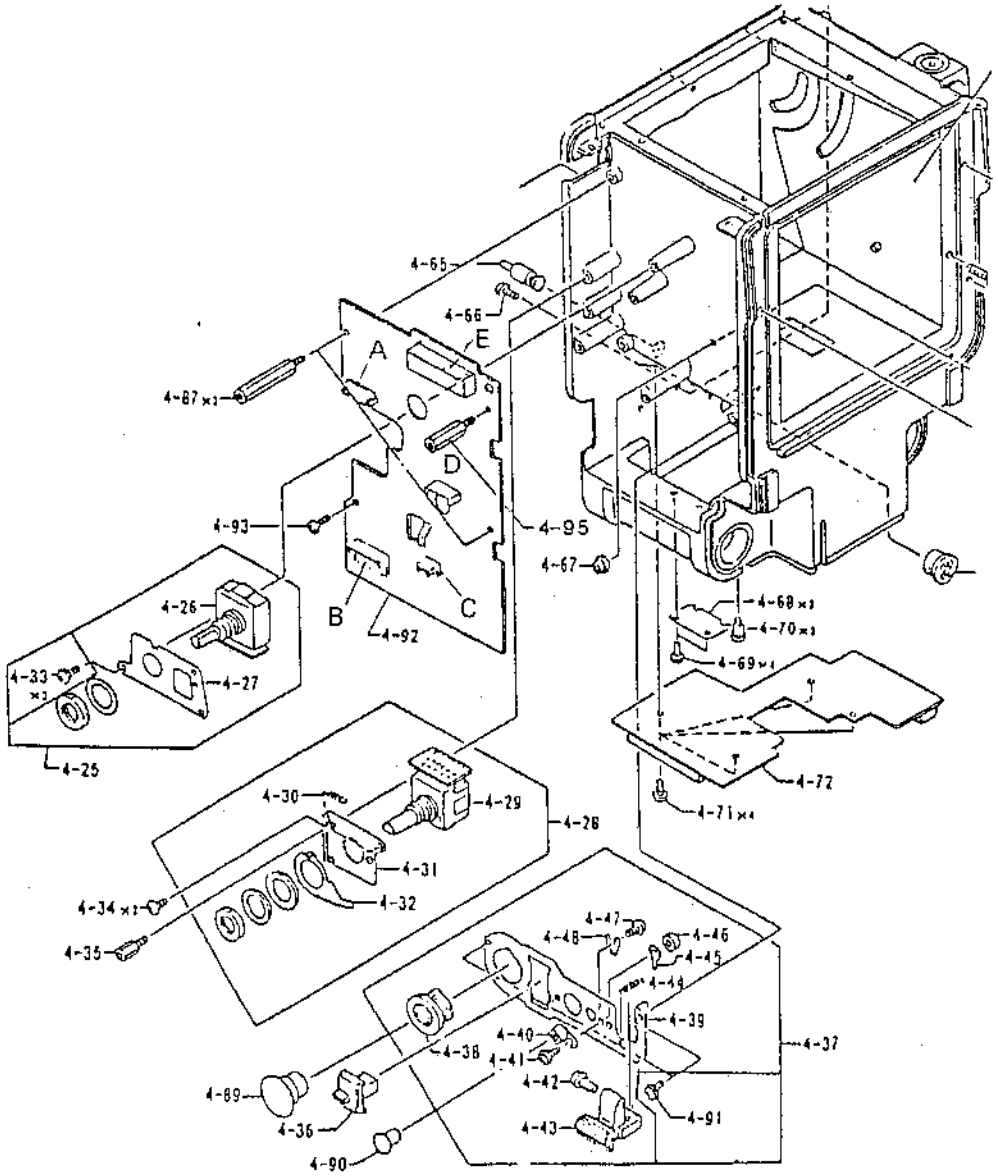
15. **Switch board assembly (4-92), SV switch assembly (4-25), main switch assembly (4-28) and receptacle assembly (4-37).**

Install each switch board and switch as shown in Fig. 32, and connect each connector of the lead wire to the appropriate connector firmly.

NOTE:

Push the connector board and switch board especially firmly.

Fig. 32



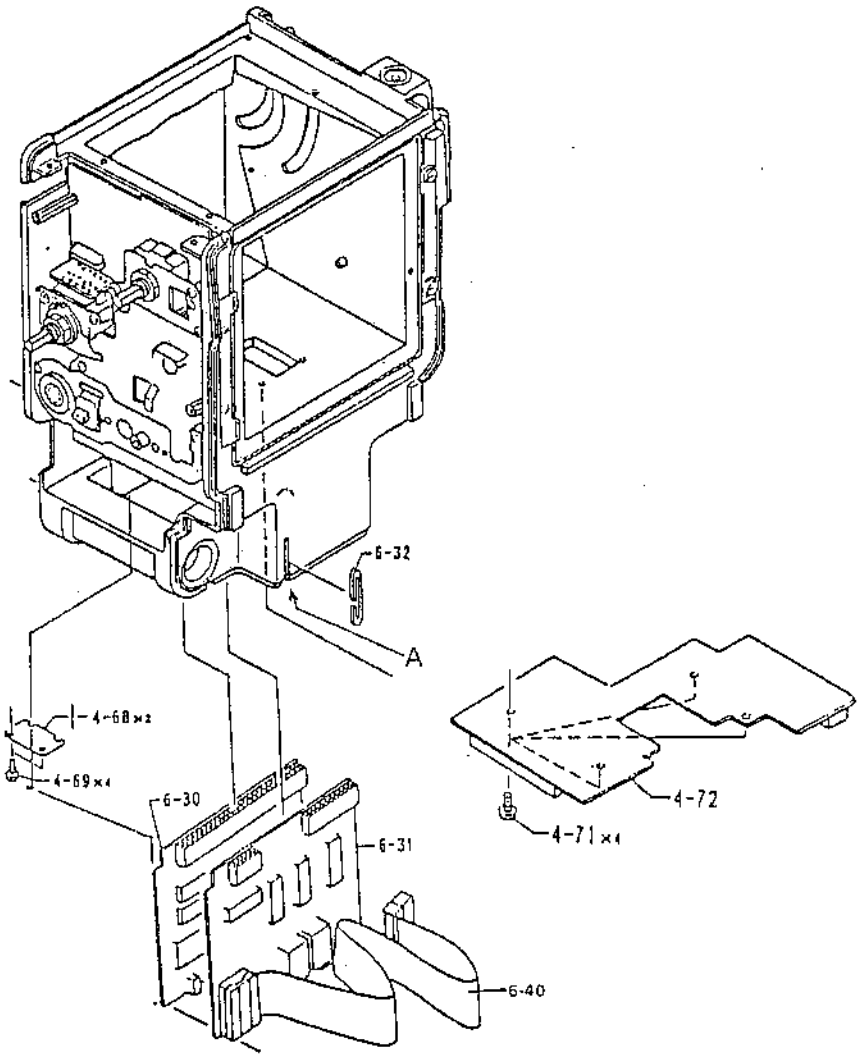
16. CPU assembly (6-30) and interface board assembly (6-31)

16.1 Through the PCB holder (4-68), connect the CPU assembly (6-30) and interface board assembly (6-31) to the connector of the connector board assembly (4-72) straight and firmly.

16.2 Apply the cable protector (6-32) on the cable (6-40), insert the cable protector (6-32) into the groove A of the main body, and provide the cable with a slight slackness.

16.3 Now, set the main switch to "SINGLE", apply 7.5V to the contact (4-4), control the mirror button, and make sure that the mirror operates correctly.

Fig. 33



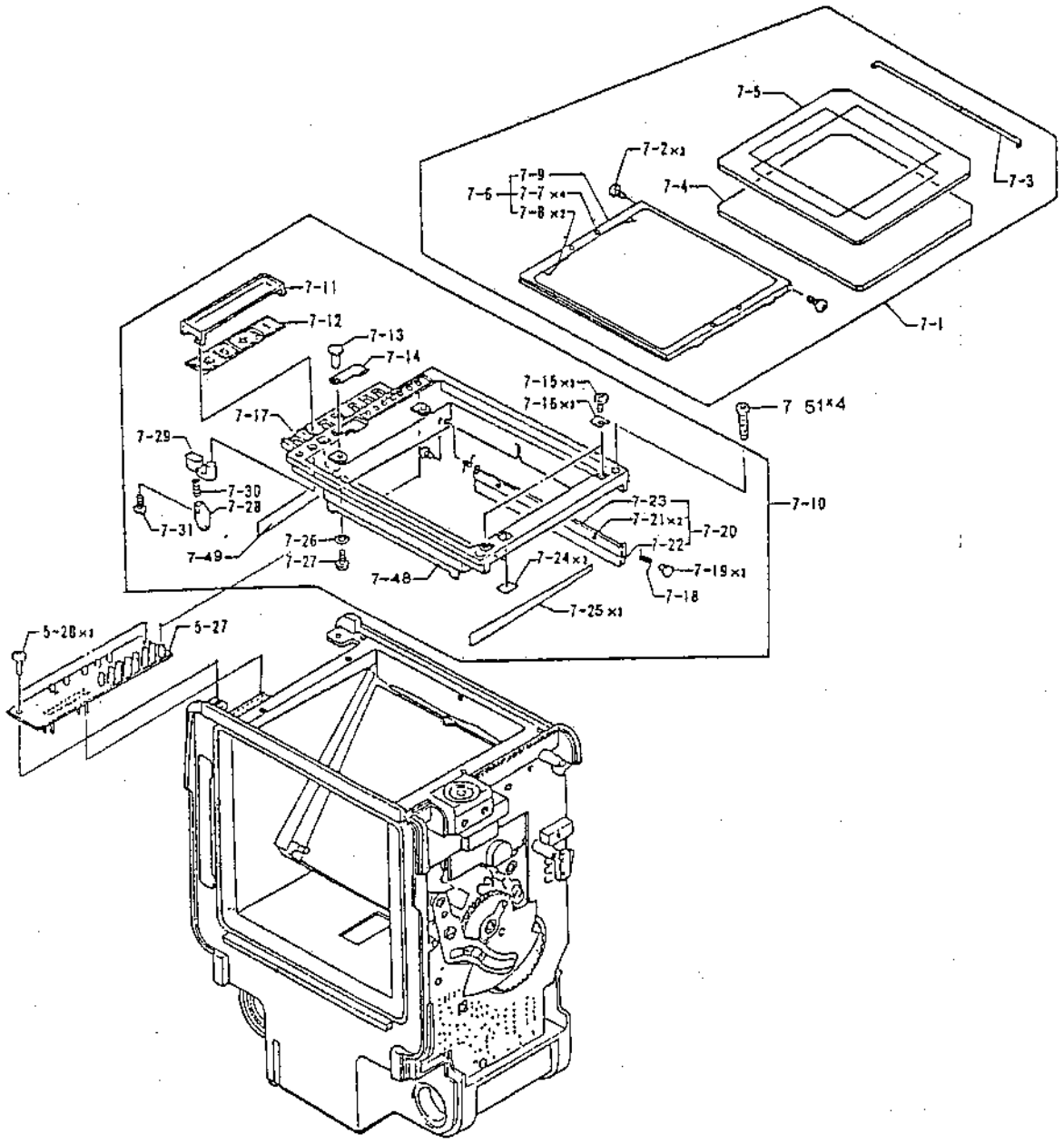
17. Focusing screen assembly A (7-1) and top cover assembly (7-10)

17.1 Connect the connector pins of the LED board assembly (5-27) to the connector of the switch board on the main body, and secure the LED board assembly (5-27) on the main body with two screws (5-28).

17.2 Fitting the top cover assembly (7-10) to the AE contact pin, install the top cover assembly (7-10) on the main body with four screws (7-51).

17.3 Thoroughly clean the focusing screen interior and mirror, fit the focusing screen assembly A (7-1) to the top cover assembly (7-10), and lock it with the lock lever (7-14).

Fig. 34


7-5
7-2×3
7-3
7-6
7-9
7-7 ×4
7-8 ×2
7-4
7-1
7-11
7-12
7-13
7-14
7-15×1
7-16×1
7 51×4
7-17
7-29
7-30
7-28
7-31
7-10
7-23
7-21×2
7-20
7-22
7-26
7-27
7-49
7-48
7-24×2
7-19×1
7-18
7-25×1
5-28×1
5-27

18. Rail assembly B (3-43), rail assembly A (3-48), bellows assembly (6-1), bottom cover assembly (6-24), and front cover assembly (3-23)

18.1 Fit the rail assembly B (3-43) and rail assembly A (3-48) to the main body correctly, and after applying screw locking agent to the threads of the positioning screw (4-70), secure the rail assembly A (3-48) with the positioning screw (4-70).
Further, install and tighten two screws (6-10) by the use of a tightening jig.
The rated tightening torque is 13 to 15 kg-cm.

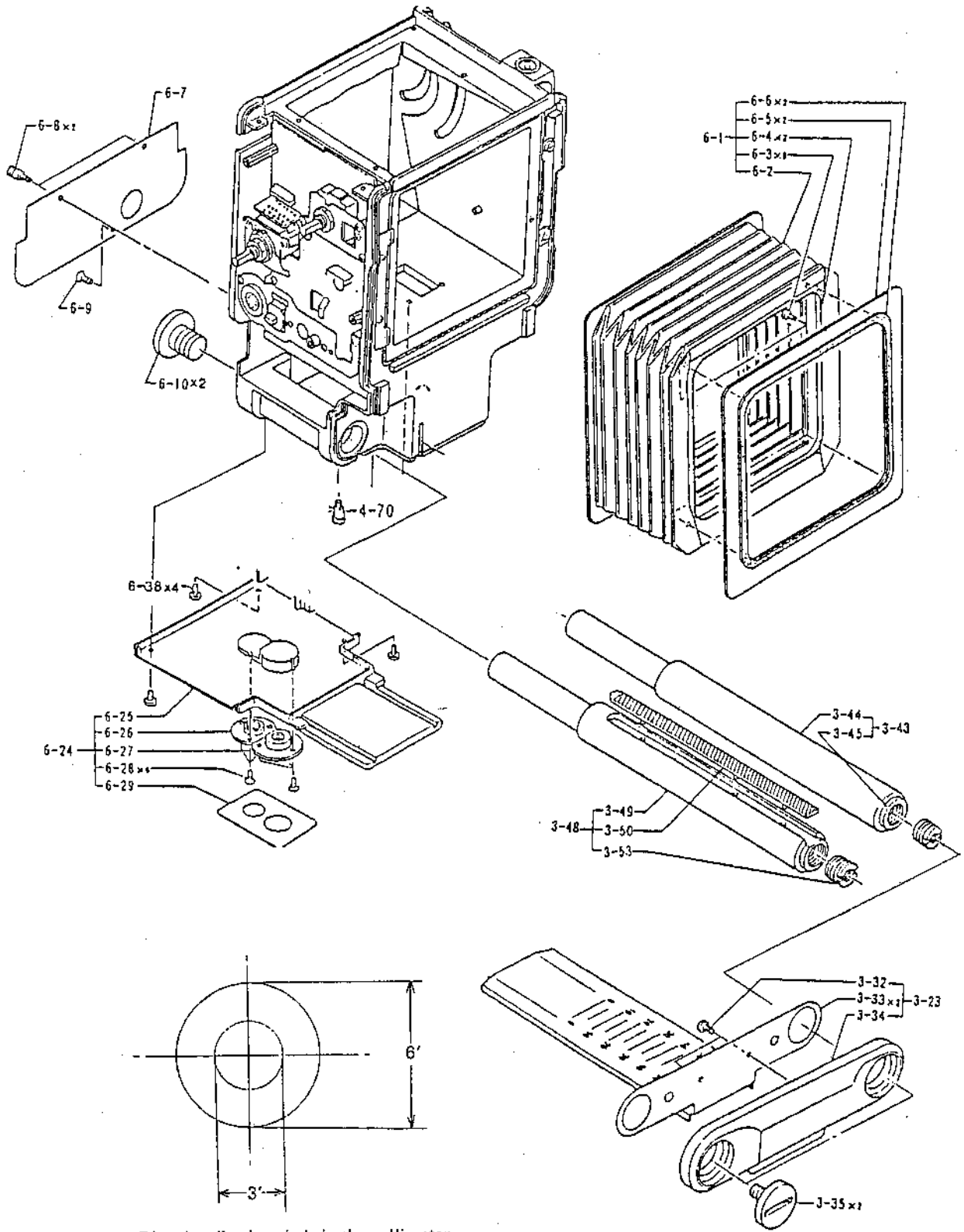
18.2 Apply the carrier base assembly (3-1) to the rails, firmly connect the cable connector to the carrier base side connector, apply the front cover assembly (3-23) to the rail head, and tighten two screws (3-35) with a coin.

18.3 Install the bellows assembly (6-1), set the camera on a parallelism measuring instrument, install a jig mirror instead of the lens, set the carrier to 50mm, and make sure that the collimater image is within the rated tolerance (0.1°).
In case of a repair, it is desirable that the image center is in the dioptric adjust circle of the collimater.

18.4 Install the bottom cover assembly (6-24) on the main body with four screws (6-38).
Now, turn the focusing knob for several times, and make sure that everything move smoothly.

18.5 Install the number plate (6-7) on the main body with two screws (6-8) and screw (6-9).

Fig. 35



Diopric adjusting circle in the collimater
Gokosha Model 400mm collimater should be used.
Rated tolerance: Within 0.1° when the image
center is in the field of view.

19. Adjustment of exposure

19.1 Before starting the exposure adjustment, take out the lead wire from each check point.

19.2 Mount the standard lens (135mm).

19.3 Set the aperture to f5.6 (full open).

19.4 Set shutter speed to 1/30 sec.

19.5 Mount a film holder (with a reflector inserted).

NOTE:

It is not required to take out signal.

19.6 Set film speed to ISO 100.

19.7 Prepare a light box and turn on the power.

19.8 Set light value to EV 10.

19.9 Apply the lens portion to the light box window tightly.

19.10 Set the switch mode of the camera to "SINGLE".

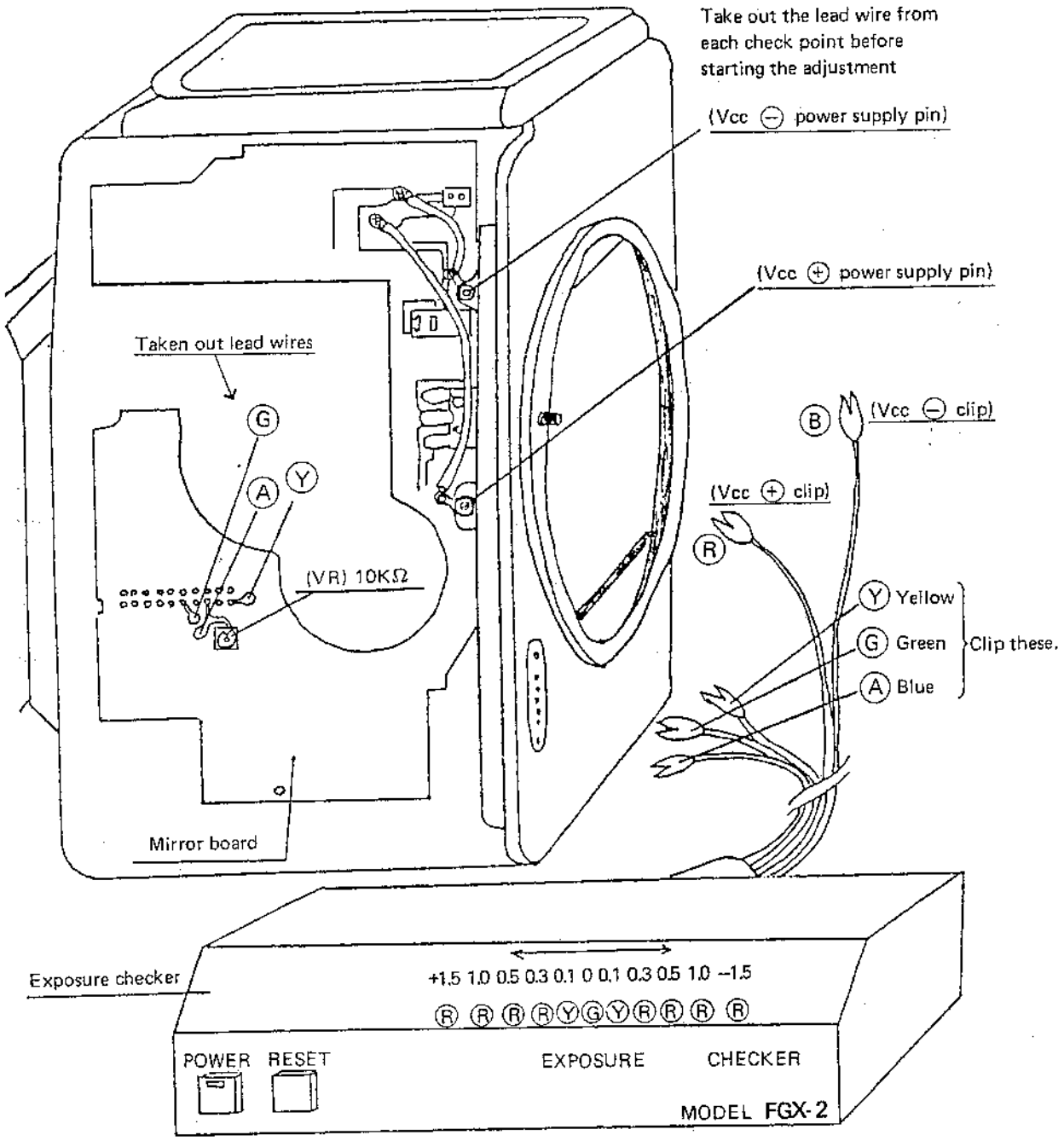
19.11 Turn on the shutter switch to operate the shutter by the use of a remote release.

Adjust VR (10 kΩ) so that the level at the time when the shutter opens is in zero point (LED) of the exposure checker.

To return the exposure checker to the starting time point, push the RESET button.

Fig. 36

Exposure adjusting jig and how to use it



[Check points and occurrences]

Light box (EV value)	EV 7.7 (−2.3)	EV 8.3 (−1.7)	10	EV 11.7 (+1.7)	EV 12.3 (+2.3)
Camera side (Adjust point)	—	—	Zero point adjustment	—	—
Indication on the exposure checker	−1.5(LED) Blinks	−1.5(LED) Blinks	The buzzer sounds The buzzer sounds 3 times.	+1.5(LED) Blinks	+1.5(LED) Blinks
Indication on the camera	(−) indication	EXP Ⓖ	EXP Ⓖ	EXP Ⓖ	(+) indication
Indication on the exposure monitor	Lights	LED Lights	LED Lights	LED Lights	Lights
When remote release is used	The buzzer within the remote release sounds.				The buzzer within the remote release sounds.

Indications on the exposure checker and each step.

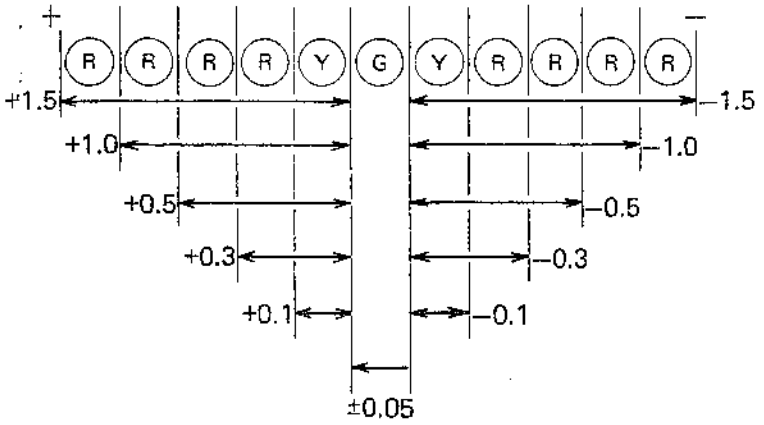
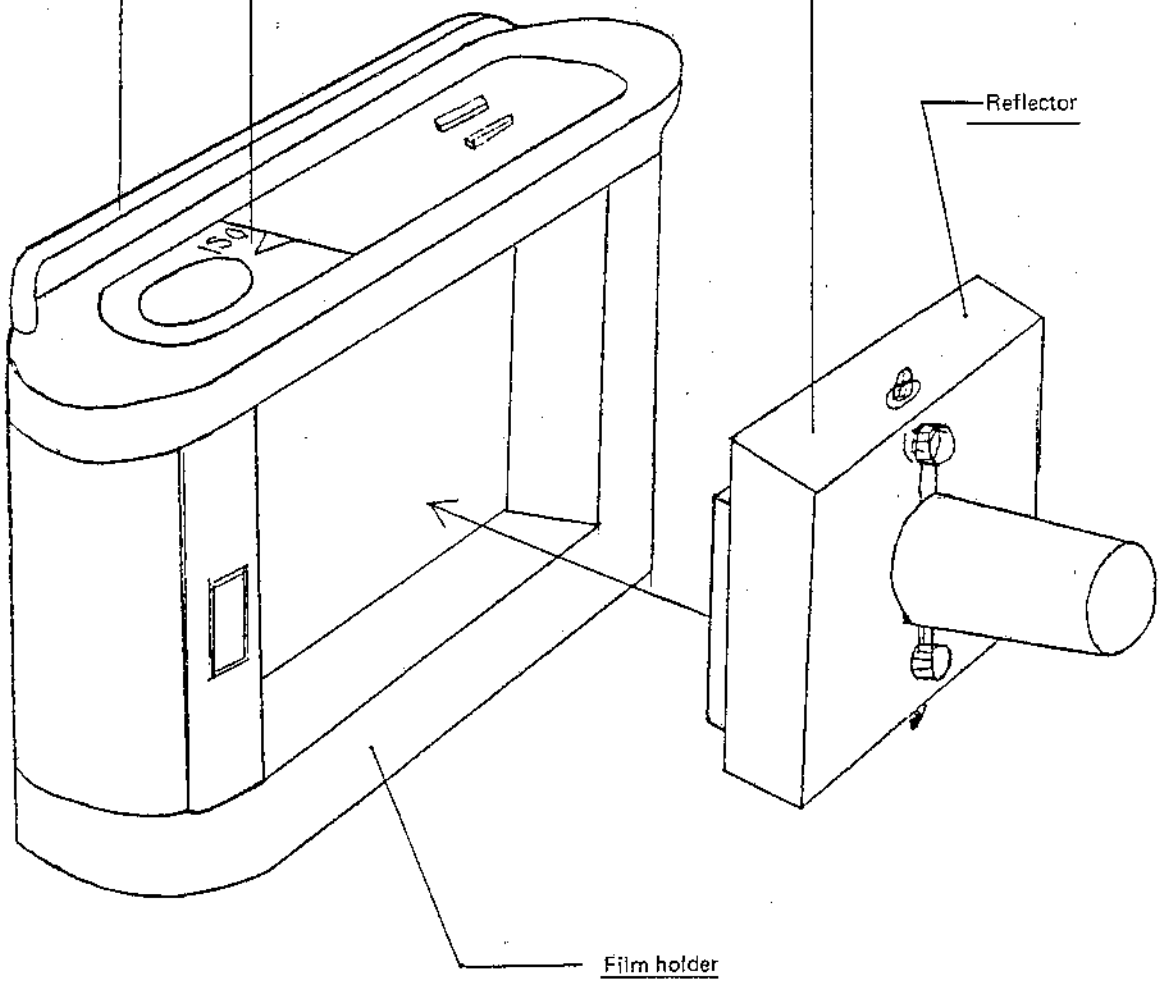


Fig. 37

[ARRANGEMENT ON THE FILM HOLDER] 1) Mount the film holder on the camera body.

2) Set the film speed to ISO-100.

3) Insert the reflector into the film holder.



20. Left side cover assembly (6-13) and right side cover assembly (7-33)

20.1 Apply the spring (6-12) to the button (6-11), and place them on the film wind switch. Matching the button holes, place the left side cover assembly (6-13) on the main body, and secure with three screws (6-36), screw (6-35) and two screws (6-23).
Install the name plate (6-18) with adhesive correctly. (No tilting or bending is permitted.)
Now, install the shutter dial (6-20) and main switch knob (6-19).

20.2 After insuring that each part has been installed correctly, install the right side cover assembly (7-33) on the main body with two screws (7-41), screw (7-42), screw (7-43) and three screws (7-44), and install the cover plate (7-32) with adhesive.

21. Checking and adjusting focus

21.1 Mount the standard lens (135mm), mount a film holder on the camera, remove the focusing screen, and install a focus adjust jig in the place of the focusing screen.

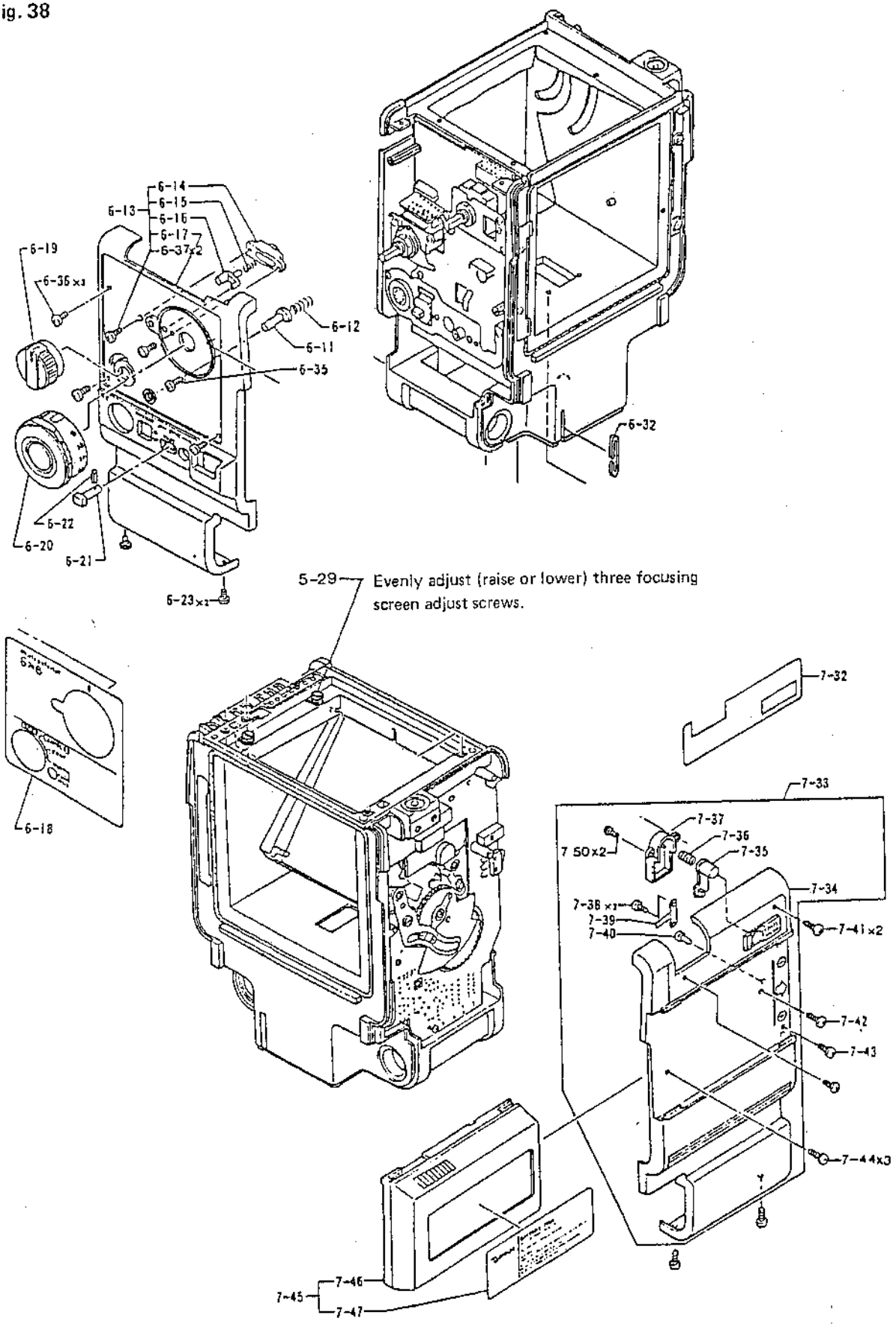
21.2 Apply focusing glass to the rail plane of the film holder, oppose the camera against a chart distanced two meters from the camera, raise the mirror and focus.

21.3 Observe the image on the focusing screen. When it is focused correctly, the condition is normal. If not, insert a screw driver through the hole on the jig, and adjust three adjust screws (5-29) to adjust the focus.

21.4 After adjusting as indicated above, replace the jig with the focusing screen, and make sure that sharpness of the square image seen on the focusing screen is even and that the image is same as that on the film plane.

21.5 Install the viewfinder hood.

Fig. 38


6-14
6-15
6-13
6-16
6-17
6-37×2
6-19
6-36×3
6-12
6-11
6-35
6-22
6-20
6-21
6-23×2
6-32
5-29
Evenly adjust (raise or lower) three focusing screen adjust screws.
6-18
7-32
7-33
7-37
7-36
7-35
7 50×2
7-34
7-38×2
7-39
7-40
7-41×2
7-42
7-43
7-44×3
7-45
7-46
7-47

22. Adjustments of parallelism of the focusing adjust unit and 45° mirror angle

22.1 Install mirror A on the unit 2 as shown above correctly so that the parallelism is maintained, and apply a spacer in between units 1 and 2 so that the reflected image is approximately overlapped with the fixed image located in the center of the dioptric adjust circle.

22.2 Remove the mirror A, place mirror B on unit 4, place the 45° prism in the portion where the mirror A was installed, and apply a 0.05 to 0.1mm thick spacer in between units 2, 3 and 4 so that the reflected image is approximately overlapped with the fixed image in the center of the dioptric adjust circle of the collimater.

NOTE:

a) Depending on a collimater, the fixed image may not be in the center of the dioptric adjust circle. However, it is still required to match the reflected image with the fixed image.

b) Place the prism correctly against the collimater (left, right and tilting directions). When no prism is available, the mirror may be used if 45° can be maintained accurately.

Fig. 39

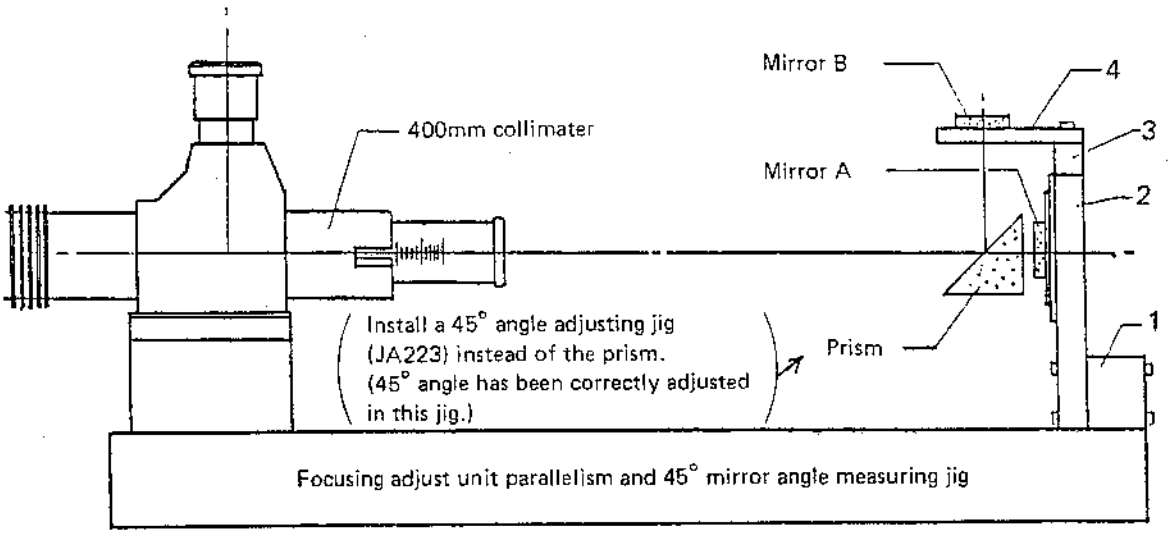
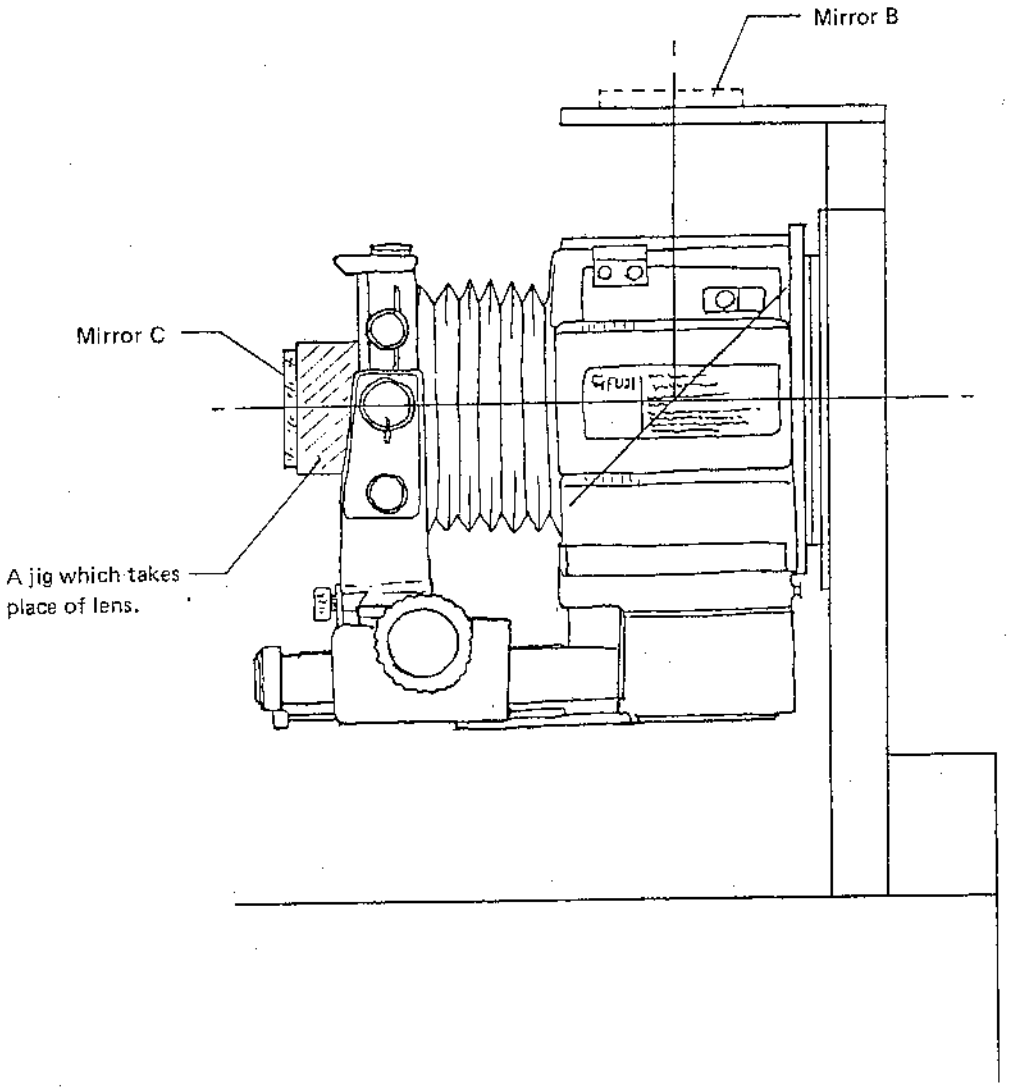


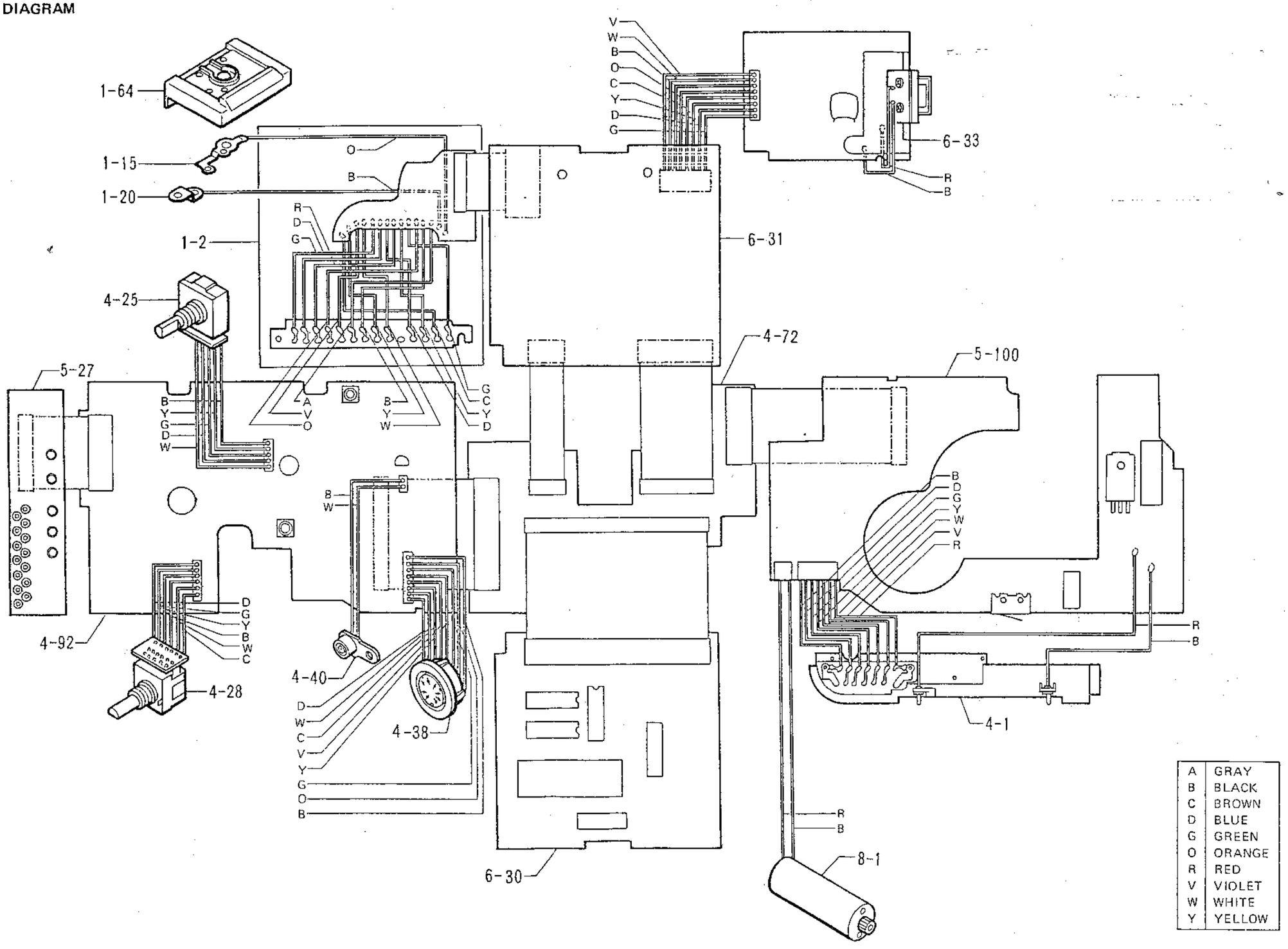
Fig. 40



Place mirror B as shown in Fig. 40, measure 45° of the mirror, install mirror C on the jig which takes place of the lens, install the jig on the lens mount, and measure parallelism.

WIRING DIAGRAM

Fig. 41



REPAIR MANUAL
&
PARTS LIST

FOR

FUJI GX680
ELECTRICAL SYSTEM

FUJI PHOTO FILM CO., LTD.
26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

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I. ELECTRICAL SEQUENCE DESCRIPTION FOR FUJI GX680 PROFESSIONAL

1. Major system block diagram

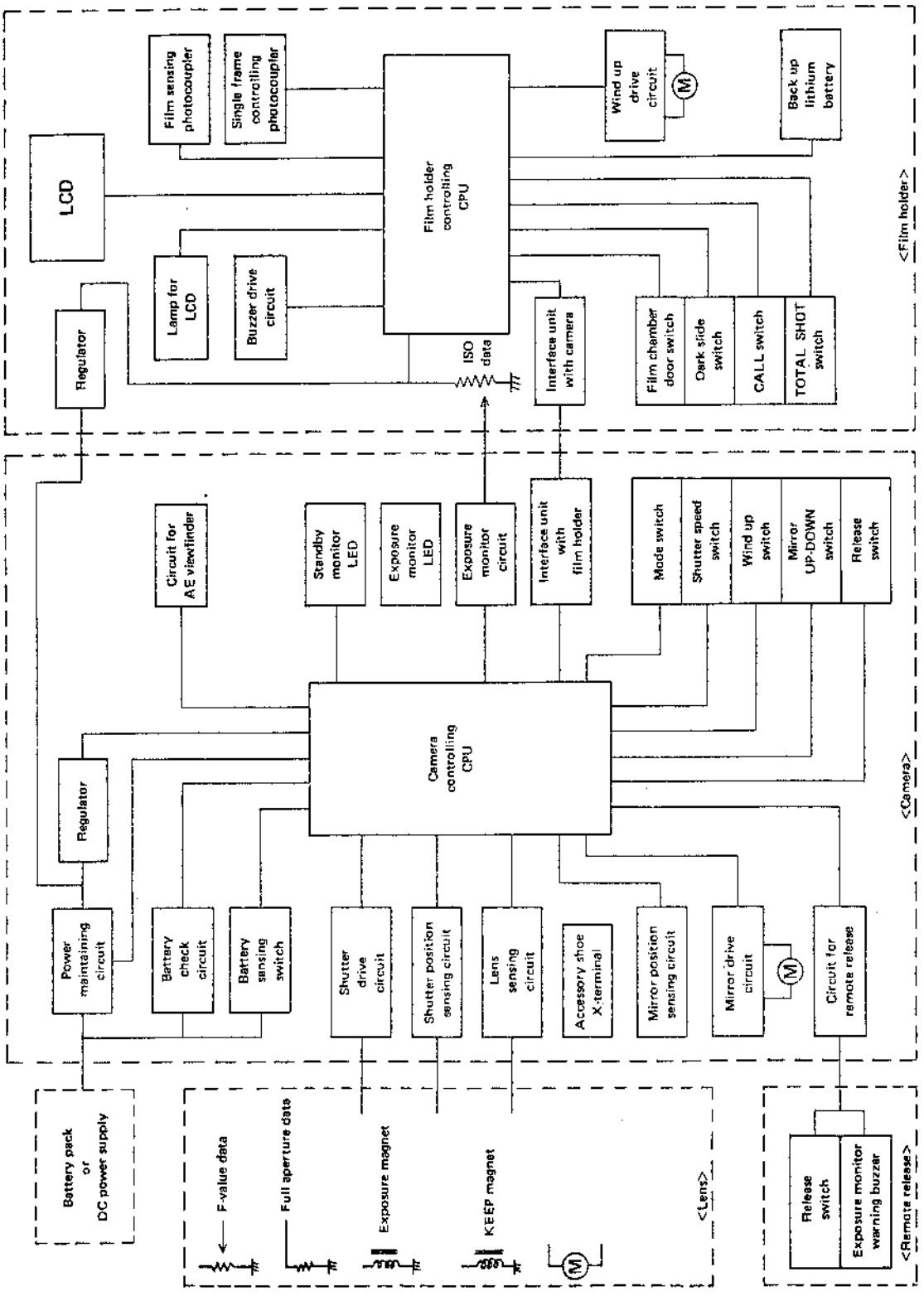


Fig. 1

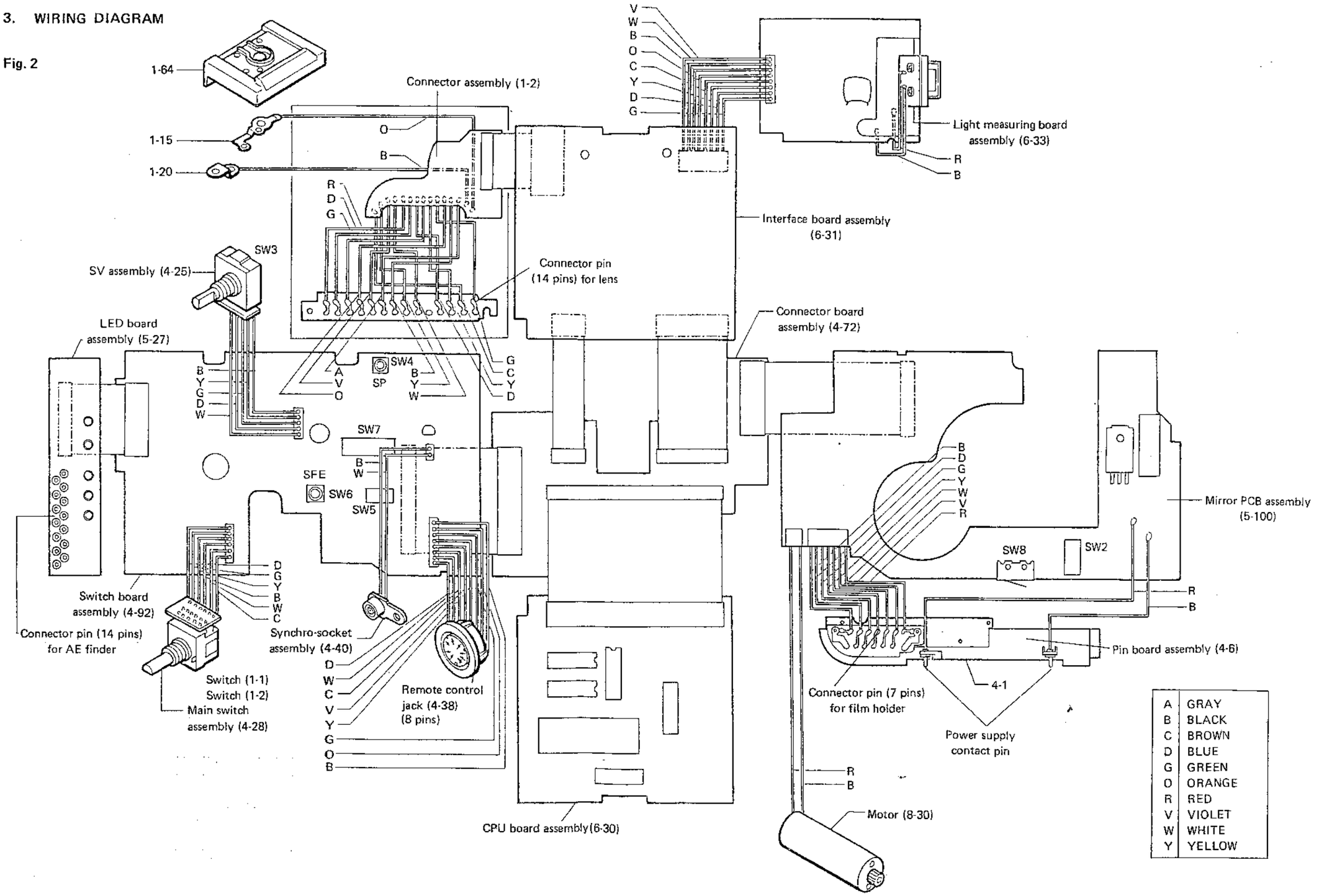
2. Switch description

SYMBOL	NAME	OPERATIONS
SW1-1	Main switch (Interlocked)	Switch Mode ○ OFF: Power supply is turned off. The camera does not operate. ○ SINGLE: The film is wound up one frame when the shutter is released once. ○ CONT: The film is wound up continuously as long as the shutter release button is depressed. ○ MULTI: Multiple exposures. (When an instant film is used, the film is not taken up even if the shutter is released.
SW2	Type of power sensing switch	This switch detects whether the supplied power is from the battery or power supply unit. (a) When the power source is the battery, the capacity is checked by the large current circuit, but when the power source is the power supply unit, it is not necessary to check the capacity, and therefore the large current circuit is disconnected. (b) Only when the battery is used, the auto-timer (OFF) circuit (which turns on continuously and turns off when 15 minutes are elapsed after the turning on) operates.
SW3	Shutter speed selector switch	This switch sets shutter speed ((B), 8 ~ 1/400 sec.) and AE mode.
SW4	Release switch	○ The release switch used when taking pictures with the camera held by hands.
SW5	Mirror switch	○ This switch operates when driving the mirror up and down only.
SW6	Film winding up switch (Wind switch)	○ Under the multiple mode, this switch transports the film to the next frame.

SYMBOL	NAME	OPERATIONS
SW7	Synchro test switch	With this switch, synchronized flash can be tested. Further, when measuring exposure with the flash fired, flash test can be made at the camera side. Also possible are to check the synchro-cord for broken wire and poor contact.
SW8	Film holder power supply switch	When the film holder is mounted on the camera, this switch turns on supplying power to the film holder.

3. WIRING DIAGRAM

Fig. 2



4. BRIEF functions of each assembly

4.1 Connector board assembly (4-72)

- Joins the CPU, interface board assembly, mirror PCB assembly and each switch.
- As an electric circuit, only power supply holding circuit is built in.

4.2 Mirror PCB assembly (5-100)

- Dummy current circuit for battery checker.
- Servo circuit for mirror drive
- Mirror position detecting photocoupler circuit
- Signal interface circuit with the film holder.
- Exposure confirming monitor check terminal and variable resistor for adjustment

4.3 Pin board assembly (4-6)

- Signal contact with the film holder

4.4 Switch board assembly (4-92) [Including the main switch SV switch and synchrosocket assembly (4-40)]

- Main switch (mode switch), SV switch (shutter speed switch), release switch, winding up switch and peripheral circuit
- Signal interface circuit with AE finder
- Monitor LED drive circuit
- Interface circuit for remote release
  Triac drive circuit for X-contact

4.5 LED board assembly (5-27)

- LED for monitor
- Signal contact with AE finder

4.6 CPU assembly (6-30)

- CPU (HG680) for GX680 camera control and peripheral circuit
- 5V regulator circuit
- Battery checker level detecting circuit
- Each mode input/output converter circuit

4.7 Interface board assembly (6-31)

- Shutter drive circuit
- Signal interface circuit with the shutter
- Signal interface circuit with light measuring board assembly

4.8 Light measuring board assembly (6-33)

- Light measuring circuit for exposure monitor

4.9 Connector assembly (1-2)

- Connects the interface board to the contact with the lens.

5. CPU (HG680) terminal description

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>FUNCTIONS</th></tr>
<tr><td>①</td><td>RESET</td><td>Reset input terminal
H (3.5V or more): The CPU is reset and level at all output terminals becomes "L".
L (1.5V or below): The CPU operates.</td></tr>
<tr><td>②
③</td><td>CL1
CL2</td><td>Clock input terminal
400 KHz</td></tr>
<tr><td>④
⑤</td><td>V(PRE)
V(LOAD)</td><td>In the current circuit, connected to GND unconditionally.</td></tr>
<tr><td>⑥
⑦</td><td>BCL
BCH</td><td>B.C. (Battery checker) level detecting input terminal
<table>
<tr><th>BCH</th><th>BCL</th><th>B.C. status</th></tr>
<tr><td>H</td><td>H</td><td>OK</td></tr>
<tr><td>L</td><td>H</td><td>Warning</td></tr>
<tr><td>L</td><td>L</td><td>NG</td></tr>
</table></td></tr>
<tr><td>⑧</td><td>$\overline{\text{FOK}}$</td><td>Terminal to input OK signal from AE finder
When an AE finder is installed and it is operating, OK signal (L) is input to this terminal, allowing automatic exposure.</td></tr>
<tr><td>⑨</td><td>FEE</td><td>Terminal to input exposure end signal from the AE finder</td></tr>
<tr><td>⑩</td><td>FST</td><td>Terminal to output light value latch signal to the AE finder
Under AE mode, the signal is output immediately before the mirror goes up.</td></tr>
<tr><td>⑪</td><td>FES</td><td>Terminal to output "Immediately before starting an exposing operation" signal.
This signal is output always except when the shutter is set to "B".
Under AE mode, automatic exposure (AE) starts from this signal.</td></tr>
<tr><td>⑫</td><td>FEED</td><td>Terminal to output "WIND UP" and "NG" signals to the film holder
When turns off immediately after "RECEIPT" signal returns from the film holder, it is a "WIND UP" signal, or when turns off 50 msec. after, it is an "NG" signal.</td></tr>
</table>

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>FUNCTIONS</th></tr>
<tr><td>⑬
⑭</td><td>SM4
SM3</td><td>Terminal to input shutter status.
<table>
<tr><td></td><td>Without shutter</td><td>Mechanical shutter</td><td colspan="2">Electronic shutter</td></tr>
<tr><td></td><td></td><td></td><td>ST OFF</td><td>ST ON</td></tr>
<tr><td>SM3</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>SM4</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>⑮
⑯</td><td>SM2
SM1</td><td>Terminal to input position of electronic shutter
<table>
<tr><td></td><td>Charge position</td><td>— — —</td><td>Sector close position</td><td>— — —</td><td>Release position</td></tr>
<tr><td>SM1</td><td>L</td><td>L</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td>SM2</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>⑰
⑱</td><td>MM2
MM1.</td><td>Terminal to input mirror position
<table>
<tr><td></td><td>Down position</td><td>— — —</td><td>Up position (mirror only)</td><td>— — —</td><td>Up position</td></tr>
<tr><td>MM1</td><td>L</td><td>L</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td>MM2</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>⑲</td><td>$\overline{\text{ABLE}}$</td><td>Terminal to input OK signal from the film holder
When the level is “L”, it is judged to be OK allowing shutter release.
In case of FEED mode, pulse is used as the signal received by the film holder.</td></tr>
<tr><td>⑳</td><td>$\overline{\text{SMU}}$</td><td>Terminal to input mirror UP-DOWN switch signal
When level is H: Down
When level is L: Up</td></tr>
<tr><td>㉑</td><td>V_{DD}</td><td>Power supply (V_{DD}) terminal of the CPU</td></tr>
<tr><td>㉒</td><td>MMB</td><td>Terminal to output mirror down drive signal</td></tr>
<tr><td>㉓</td><td>MMA</td><td>Terminal to output mirror up drive signal</td></tr>
<tr><td>㉔</td><td>V_M</td><td>Output terminal to supply power to the photocoupler for mirror position detection.</td></tr>
<tr><td>㉕</td><td>EST</td><td>Output terminal for exposure monitor control</td></tr>
<tr><td>㉖</td><td>MGE</td><td>Output terminal for shutter exposure magnet control</td></tr>
</table>

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>FUNCTIONS</th></tr>
<tr><td>㉗</td><td>MGK</td><td>Output terminal for shutter keep magnet control</td></tr>
<tr><td>㉘</td><td>SMB</td><td>Terminal to output shutter charge drive signal</td></tr>
<tr><td>㉙</td><td>SMA</td><td>Terminal to output shutter release drive signal</td></tr>
<tr><td>㉚</td><td>$\overline{SP}$</td><td>Terminal to input release switch signal</td></tr>
<tr><td>㉛
㉜
㉝</td><td>MODE3
MODE2
MODE1</td><td>Terminal to input mode (status) of the camera
<table>
<tr><th></th><th>Film holder</th><th>SFE</th><th>MODE1</th><th>MODE2</th><th>MODE3</th></tr>
<tr><td rowspan="4">OFF</td><td rowspan="2">Mounted</td><td>ON</td><td rowspan="4">L</td><td rowspan="4">L</td><td rowspan="4">H</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="2">Not mounted</td><td>ON</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="4">S</td><td rowspan="2">Mounted</td><td>ON</td><td rowspan="4">L</td><td rowspan="4">L</td><td rowspan="4">L</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="2">Not mounted</td><td>ON</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="4">C</td><td rowspan="2">Mounted</td><td>ON</td><td rowspan="4">L</td><td rowspan="4">H</td><td rowspan="4">L</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="2">Not mounted</td><td>ON</td></tr>
<tr><td>OFF</td></tr>
<tr><td rowspan="4">M</td><td rowspan="2">Mounted</td><td>ON</td><td>H</td><td>H</td><td>H</td></tr>
<tr><td>OFF</td><td>H</td><td>H</td><td>L</td></tr>
<tr><td rowspan="2">Not mounted</td><td>ON</td><td rowspan="2">H</td><td rowspan="2">L</td><td rowspan="2">L</td></tr>
<tr><td>OFF</td></tr>
</table></td></tr>
<tr><td>㉞</td><td>LEDY</td><td>Output terminal to control standby monitor when B.C. level is warned.</td></tr>
<tr><td>㉟</td><td>LEDG</td><td>Output terminal to control standby monitor when B.C. level is normal.</td></tr>
<tr><td>㊱</td><td>BCP</td><td>Output terminal to drive B.C. circuit.
When checking the battery, H pulse is output for 10 msec.</td></tr>
<tr><td>㊲</td><td>LATCH</td><td>Output terminal to control power supply holding circuit</td></tr>
</table>

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>FUNCTIONS</th></tr>
<tr><td>(38)
(39)
(40)
(41)</td><td>G3
G2
G1
G0</td><td>Input terminal to control shutter speed
<table>
<tr><th>G0</th><th>G1</th><th>G2</th><th>G3</th><th>Shutter speed</th></tr>
<tr><td>H</td><td>H</td><td>H</td><td>H</td><td>Automatic</td></tr>
<tr><td>L</td><td>H</td><td>H</td><td>H</td><td>1/400</td></tr>
<tr><td>L</td><td>L</td><td>H</td><td>H</td><td>1/250 (256)</td></tr>
<tr><td>H</td><td>L</td><td>H</td><td>H</td><td>1/125 (128)</td></tr>
<tr><td>H</td><td>L</td><td>L</td><td>H</td><td>1/60 (64)</td></tr>
<tr><td>L</td><td>L</td><td>L</td><td>H</td><td>1/30 (32)</td></tr>
<tr><td>L</td><td>H</td><td>L</td><td>H</td><td>1/15 (16)</td></tr>
<tr><td>H</td><td>H</td><td>L</td><td>H</td><td>1/8</td></tr>
<tr><td>H</td><td>H</td><td>L</td><td>L</td><td>1/4</td></tr>
<tr><td>L</td><td>H</td><td>L</td><td>L</td><td>1/2</td></tr>
<tr><td>L</td><td>L</td><td>L</td><td>L</td><td>1</td></tr>
<tr><td>H</td><td>L</td><td>L</td><td>L</td><td>2</td></tr>
<tr><td>H</td><td>L</td><td>H</td><td>L</td><td>4</td></tr>
<tr><td>L</td><td>L</td><td>H</td><td>L</td><td>8</td></tr>
<tr><td>L</td><td>H</td><td>H</td><td>L</td><td>Bulb</td></tr>
<tr><td>H</td><td>H</td><td>H</td><td>L</td><td>Bulb</td></tr>
</table></td></tr>
<tr><td>(42)</td><td>GND</td><td>CPU grounding terminal</td></tr>
</table>

6. TIMING CHART

6.1 Normal photographing mode

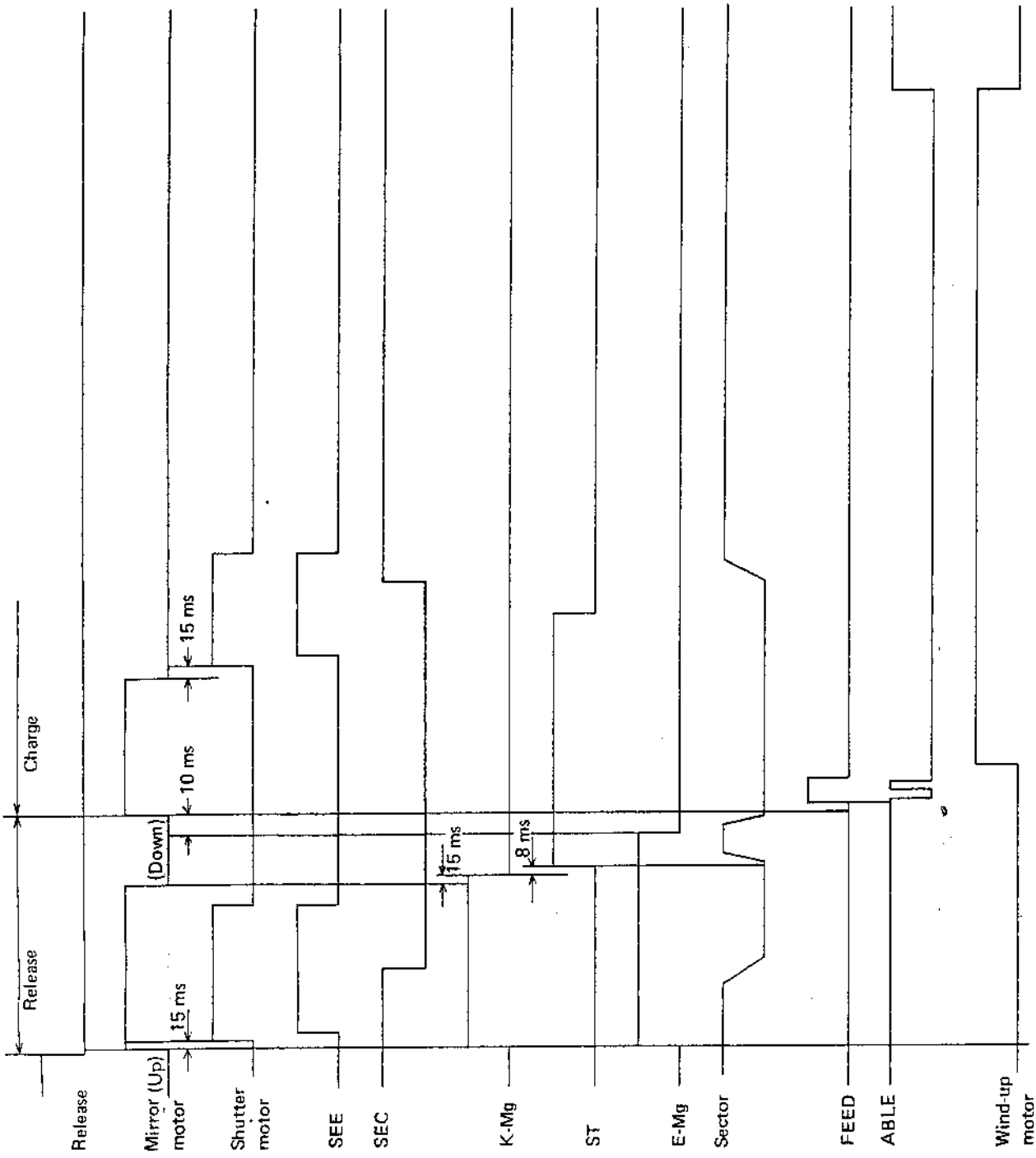


Fig. 3

6.2 Mirror up photographing mode

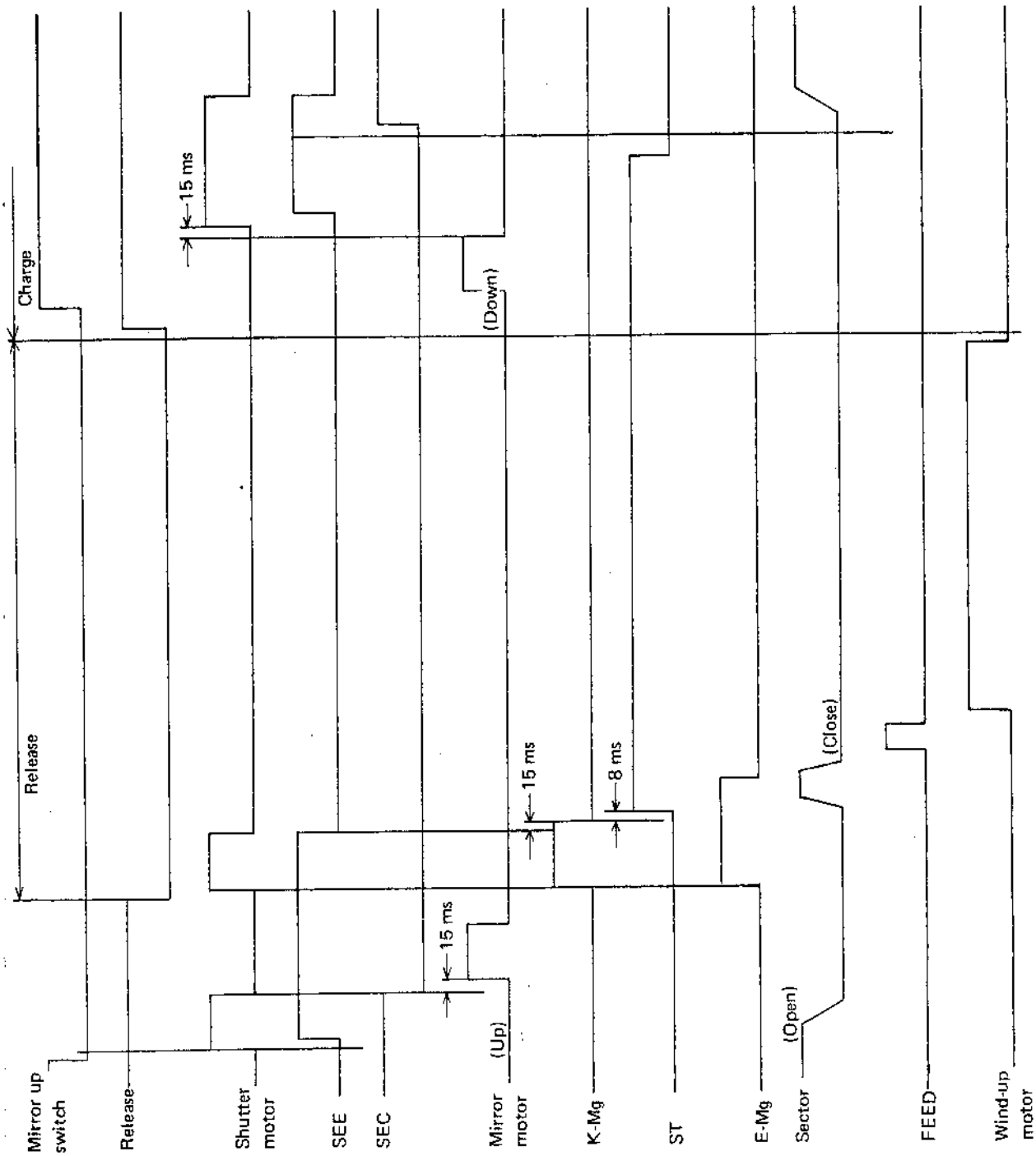
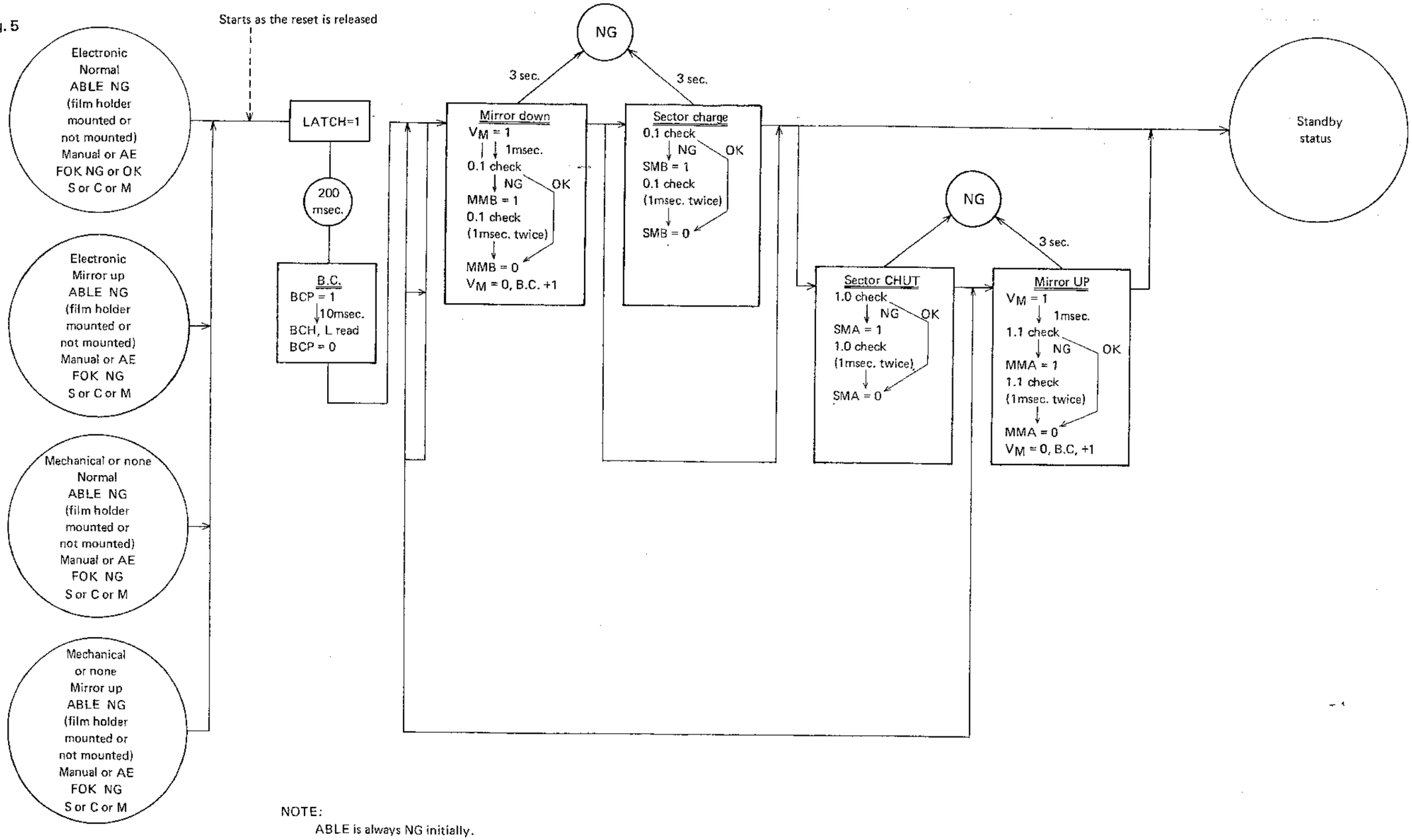


Fig. 4

7. SEQUENCE DIAGRAM

7.1 Power supplying status

Fig. 5

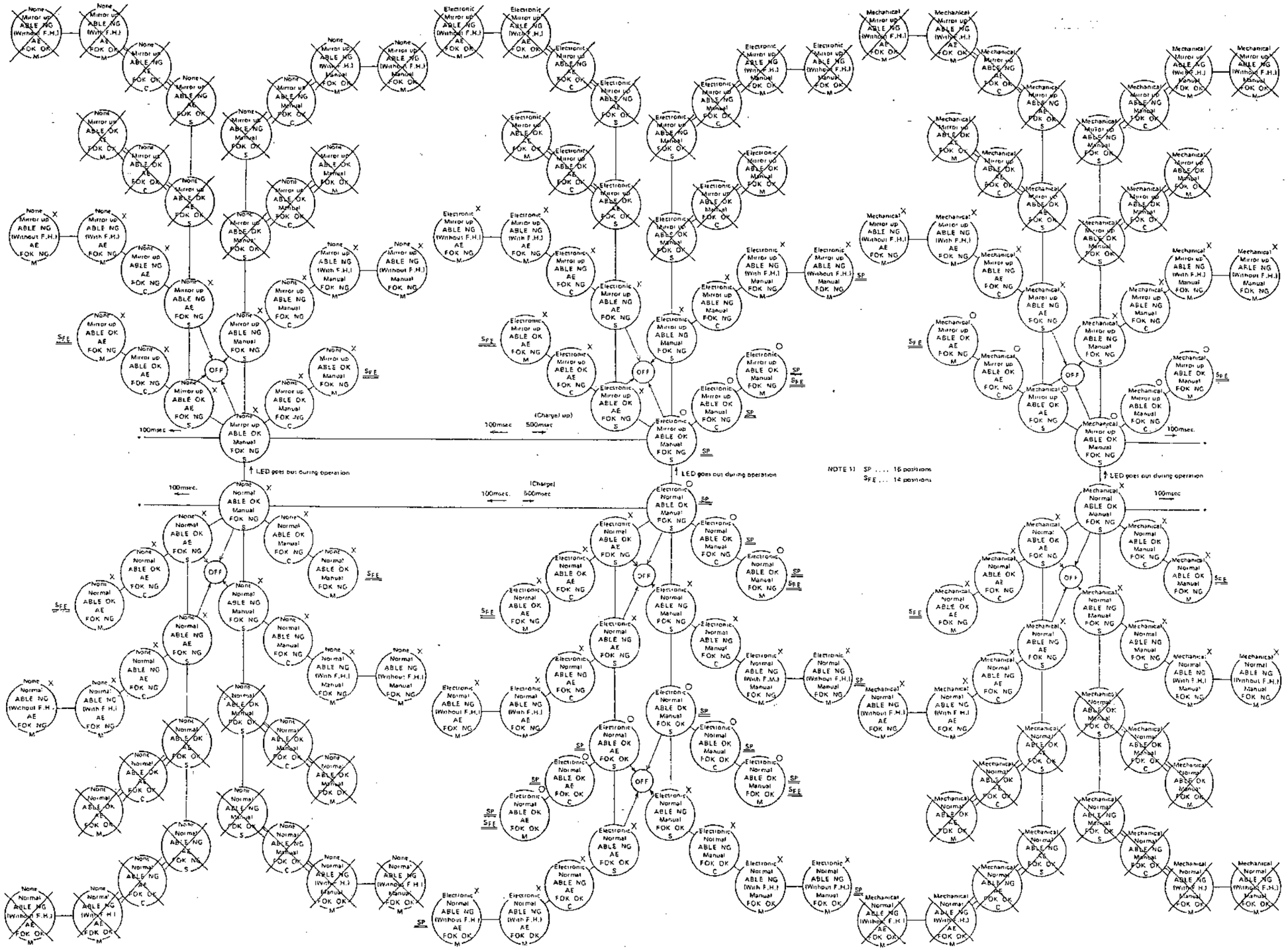


NOTE:

ABLE is always NG initially.
Can be changed to ON when 1 second is elapsed after turning on the power.

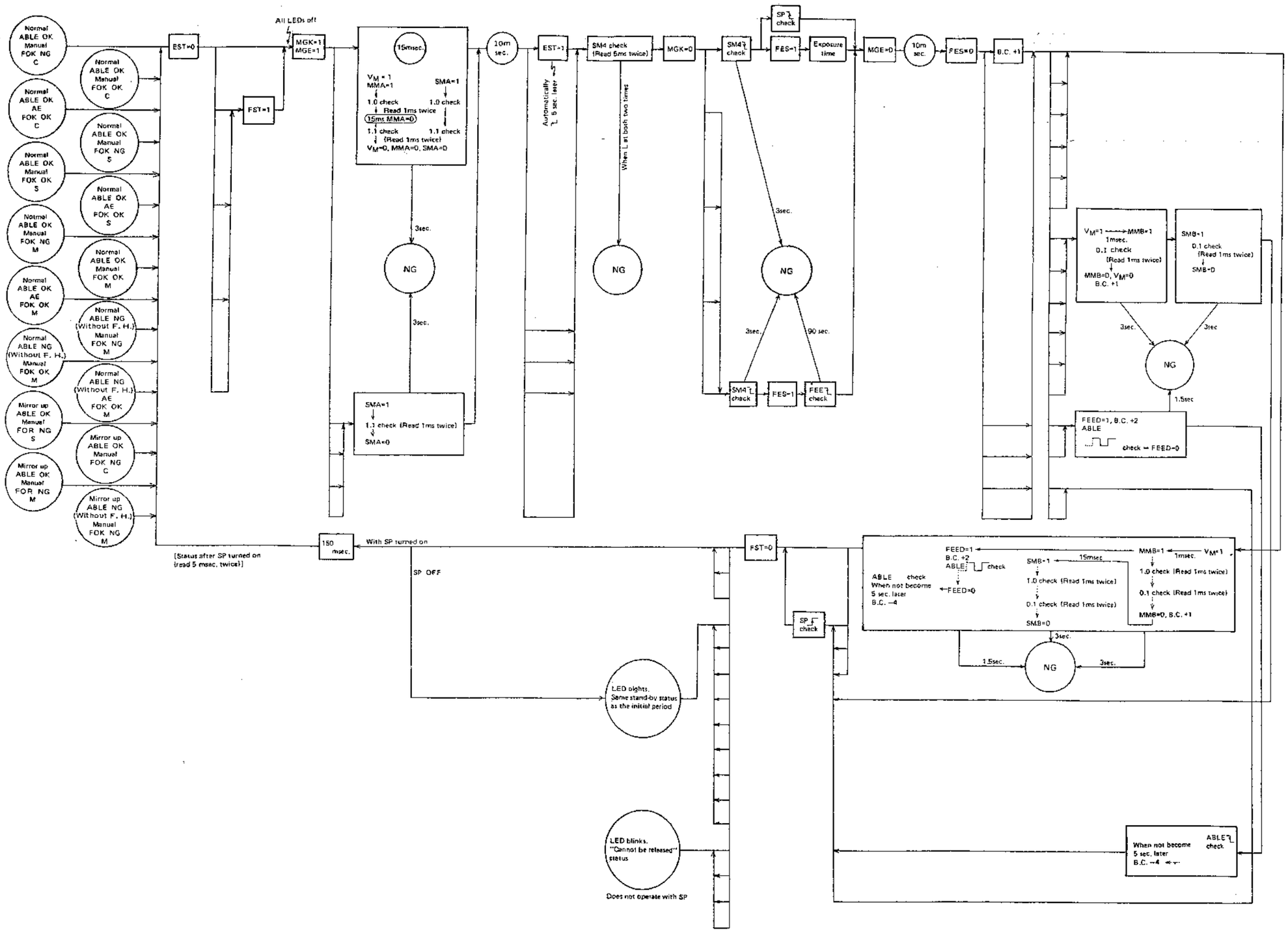
7.2 Stand-by status

Fig. 6



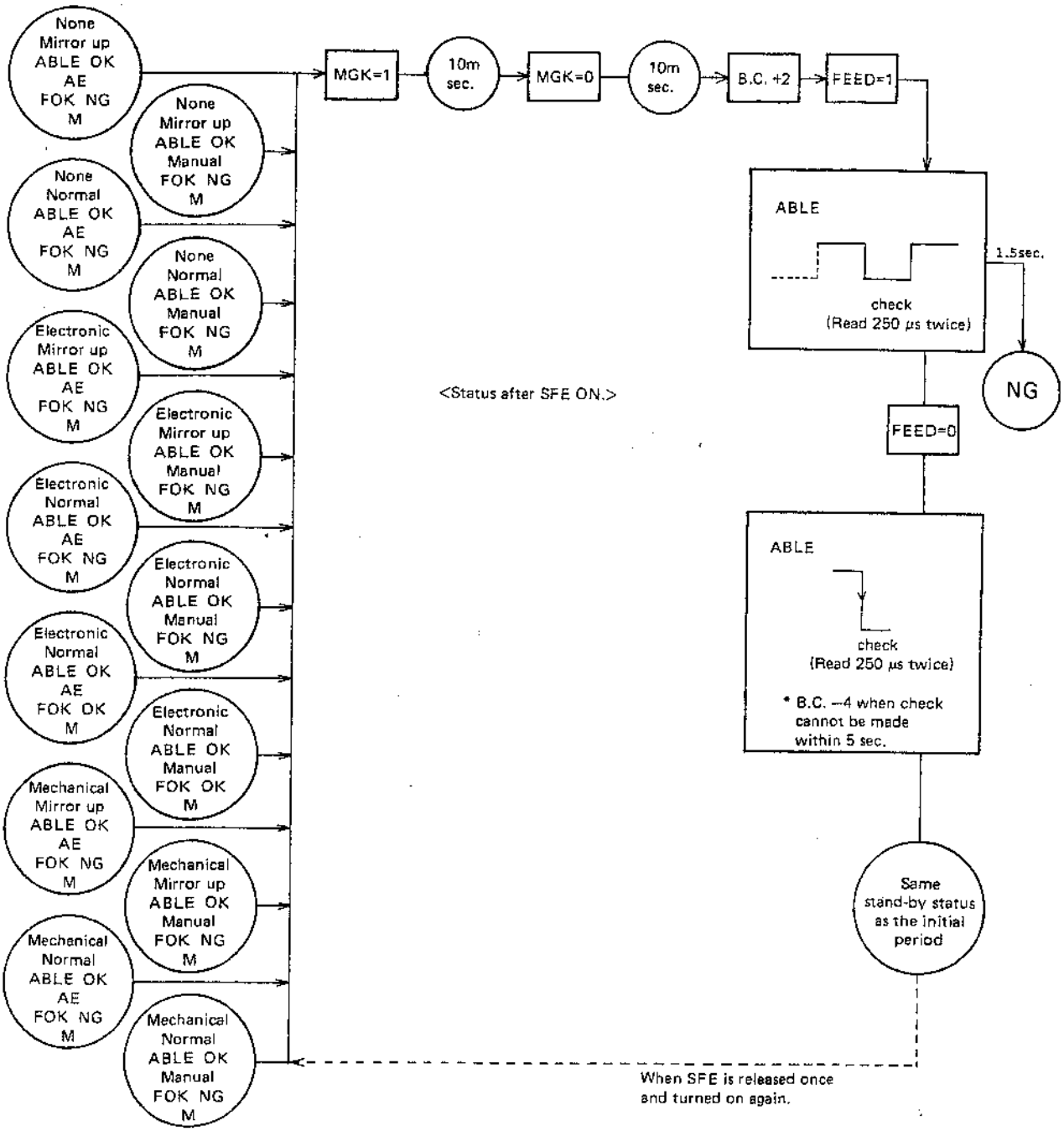
7.3 Status after SP (Release Switch (SW4)) turned on

Fig. 7



7.4 Status after SFE (Film Wind-up Switch (SW6)) turned on

Fig. 8



8. Functions of connector pins

8.1 Connector pins (14 pins) for lens

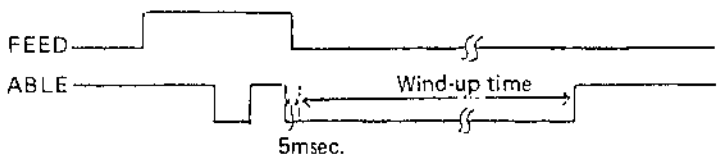
<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>FUNCTIONS</th><th>When a poor contact occurs with electronic shutter used</th></tr>
<tr><td>1</td><td>MA</td><td>Electronic shutter release motor terminal
When releasing: Vcc
Other than when releasing: GND</td><td>NG display</td></tr>
<tr><td>2</td><td>FO</td><td>Electronic shutter lens full aperture data terminal</td><td>AE finder erroneous operation</td></tr>
<tr><td>3</td><td>MB</td><td>Electronic shutter charge motor terminal
When charging: Vcc
Other than when releasing: GND</td><td>NG display</td></tr>
<tr><td>4
5</td><td>GND
SYG</td><td>GND terminal
Electronic shutter synchro GND terminal
(Actually same line)</td><td>NG display</td></tr>
<tr><td>6</td><td>SY</td><td>Electronic shutter synchro terminal</td><td>Faulty flash firing</td></tr>
<tr><td>7</td><td>F</td><td>Electronic shutter lens F-value data terminal</td><td>AE finder erroneous operation</td></tr>
<tr><td>8</td><td>ST</td><td>Electronic shutter exposure timing switch terminal
Immediately before the sector opens: ON
During charge: OFF</td><td>NG display</td></tr>
<tr><td>9
10</td><td>SEE
SEC</td><td>Electronic shutter position detecting terminal
<table>
<tr><th></th><th>Charge position</th><th>– – –</th><th>Sector close position</th><th>– – –</th><th>Release position</th></tr>
<tr><td>SEE</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
<tr><td>SEC</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr>
</table></td><td>NG display</td></tr>
<tr><td>11</td><td>S</td><td>Type of shutter detecting terminal
<table>
<tr><th></th><th>Electronic shutter</th><th>Mechanical shutter</th><th>Without lens</th></tr>
<tr><td>Voltage</td><td>5 V</td><td>GND</td><td>2.5 V</td></tr>
</table></td><td>Stand-by monitor blinks</td></tr>
<tr><td>12</td><td>V_{DD}</td><td>V_{DD} (+5V) terminal</td><td>Stand-by monitor blinks</td></tr>
<tr><td>13</td><td>MGE</td><td>Electronic shutter exposure magnet control terminal</td><td>Shutter speed is set to 1/400 always.</td></tr>
<tr><td>14</td><td>MGK</td><td>Electronic shutter KEEP magnet control terminal</td><td>NG display</td></tr>
</table>

8.2 Connector pins (7 pins) for film holder

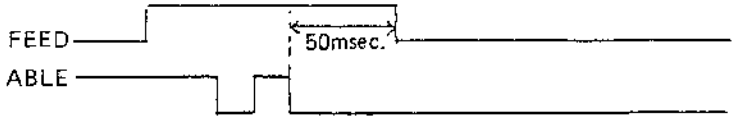
PIN NO.	SYMBOL	FUNCTIONS	When a poor contact occurs with electronic shutter used
7	$V_{CC}2$	Film holder power supply terminal Only when film holder is mounted: Vcc All others: open	The film holder thinly displays total shot Stand-by monitor blinks on the camera.
6	JOINT	Film holder control terminal When camera is operating = JOINT "L" = When film holder is operating When camera is not operating = JOINT "H" = When film holder is not operating	LCD does not display on the film holder Stand-by monitor blinks on the camera.
2	FEED	Film holder wind-up signal terminal Also functions as an NG signal terminal when the camera is NG.	The film holder does not operate.
3	ABLE	Terminal to receive stand-by signal from the film holder Also receives "Receipt" pulse signal when FEED signal is output.	Stand-by monitor blinks on the camera
4	DATA	Film holder data print signal terminal In the current model, not used yet.	———
5	ASA (ISO)	Terminal to receive ISO data from the film holder	(—) display on the exposure monitor The film holder does not wind up under multiple mode.
1	GND	Ground terminal	LCD does not display on the film holder On the camera, stand-by monitor blinks.

* Relationship between FEED and ABLE

1) When winding up



2) When NG



8.3 Connector pins (8 pins) for remote release

PIN NO.	SYMBOL	FUNCTIONS	When a poor contact occurs with electronic shutter used
1	GND	Ground terminal	The exposure warning buzzer does not sound
2	V_{DD}	V_{DD} (= 5V) terminal	The exposure warning buzzer does not sound and shutter cannot be released.
3	LEDG	Terminal for stand-by monitor (Green) display (In the current model, not used yet)	———
4	LEDY	Terminal for stand-by monitor (Orange) display (In the current model, not used yet)	———
5	BZ	Exposure warning buzzer terminal	The exposure warning buzzer does not sound.
6	SMU2	Mirror UP-DOWN switch terminal (In the current model, not used yet)	———
7	SP2	Terminal for release switch	The shutter cannot be released.
8	SFE2	Terminal for wind-up switch (In the current model, not used yet.)	———

8.4 Connector pins (14 pins) for AE finder

SYMBOL	FUNCTIONS
FVcc	AE finder power supply (about Vcc) terminal
FOK	Terminal to receive stand-by signal from the AE finder OK: "H" NG: "L"
G0 G1 G2 G3	Camera side shutter speed setting signal terminal
FEE	Terminal to receive exposure end signal from the AE finder
FES	Terminal to send exposure start signal to the AE finder
FST	Terminal to send exposure latch signal to the AE finder
F	Terminal to send lens F-value data to the AE finder
FO	Terminal to send lens full open F-value data to the AE finder
ASA (ISO)	Terminal to send ISO data to the AE finder.
SY2	Terminal to send flash test button switch signal to the AE finder
GND	AE finder grounding terminal

9. Circuit diagram

9.1 Overall circuit diagram

Fig. 9

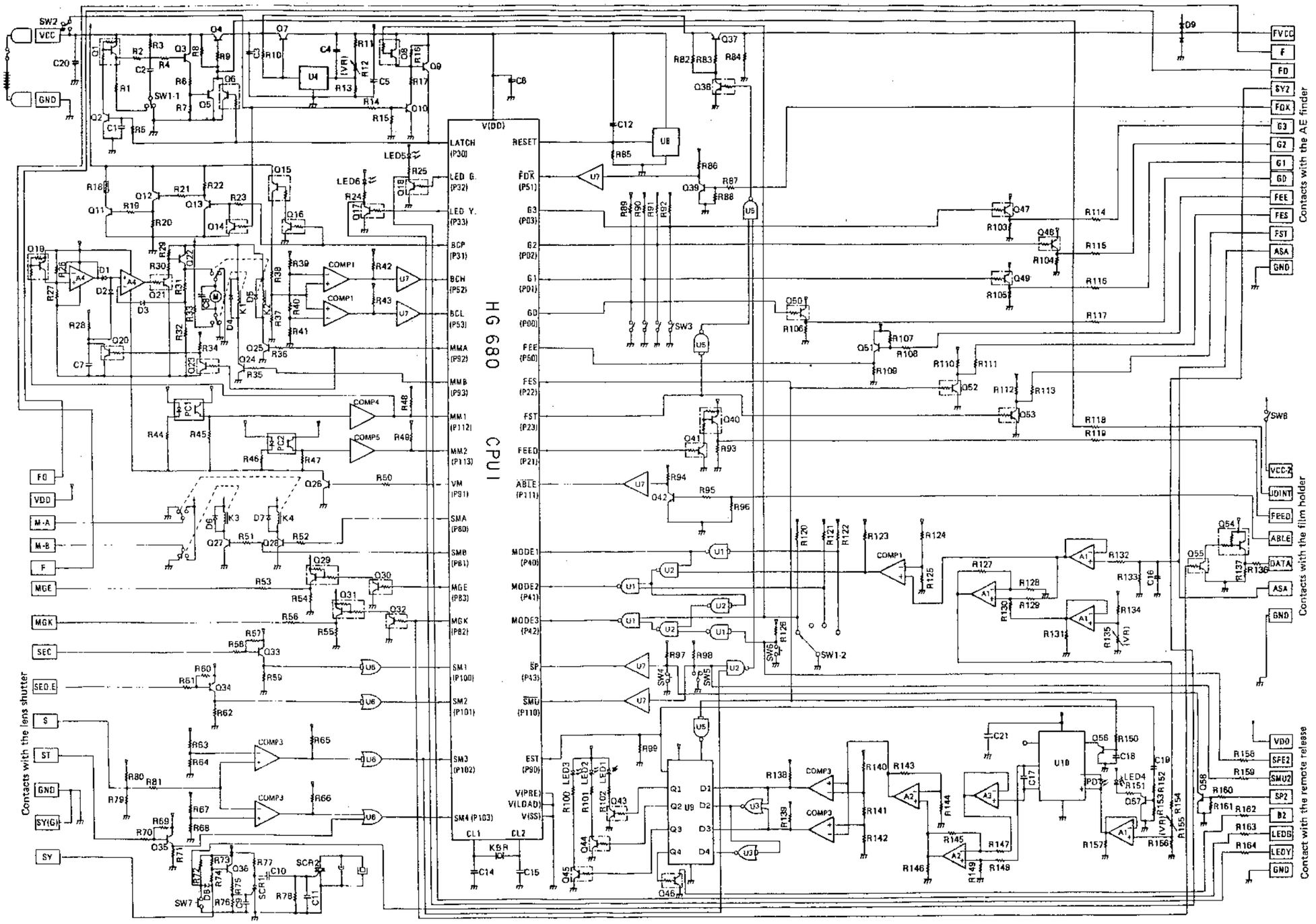
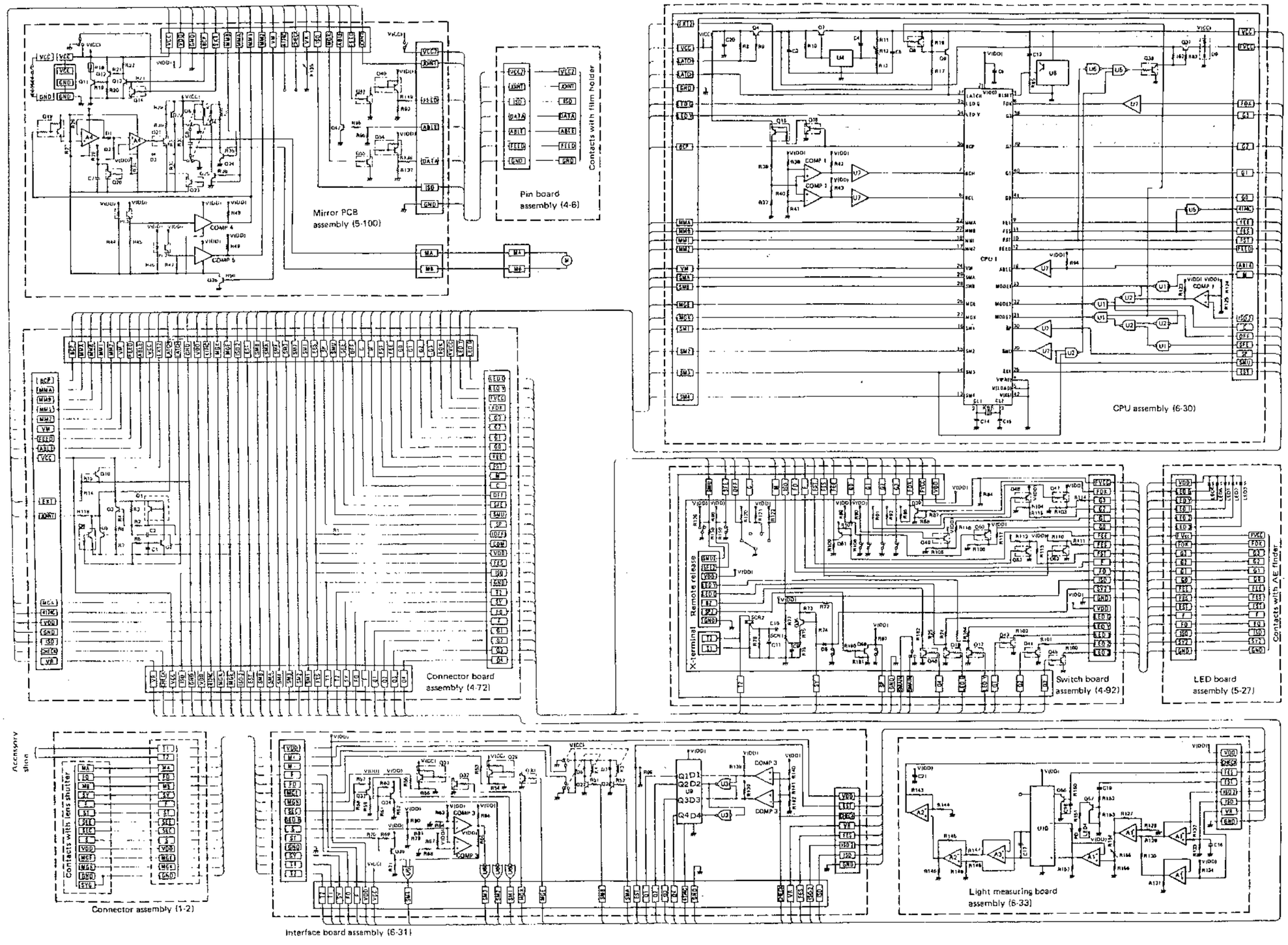


Fig. 10

9.2 Each assembly connection diagram

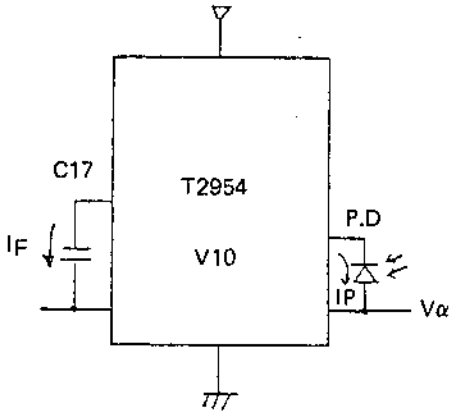


10. Circuit description

10.1 Exposure confirmation monitor circuit (Light measuring board assembly (6-33))

(1) Input/output of light measuring IC (U10 (11-3))

Fig. 11



T2954: Light measuring IC (U10 (11-3))
(The same IC used in Fuji DL-300 is used.)

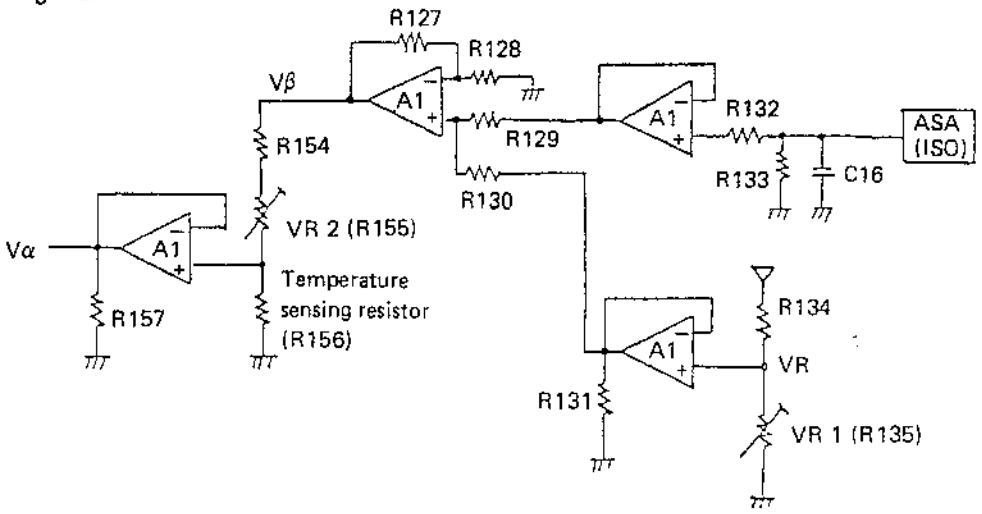
$I_F = I_P \cdot \exp\left(\frac{\alpha}{kT} \cdot V\alpha\right)$

As it may be understood from the above equation, integrated current I_F;

1) Proportions to photo-current Ip. In other words, when brightness rises one step, I_F increases as double as greater.
2) Likewise, when Vα rises about 18mV, I_F increases as double as greater. (This can be understood by calculating actually.)
Hence, Vα means "1 step 18mV (at 25°C).

(2) Input side (Vα) of the light measuring IC

Fig. 12



$V\beta = ISO + VR$

NOTE:

ISO voltage is supplied from the film holder. The values are shown in the following table.

ISO	ISO Voltage
25	0.80 V
50	0.98 V
100	1.16 V
200	1.34 V
400	1.52 V
800	1.70 V
1600	1.88 V

1 step 180mV

NOTE:

VR voltage is decided by the VR 1 (R135) installed on the mirror PCB assembly (5-100). (The method of adjustment will be described later.) The adjusting range is from zero volt to about 0.38V.

$$V\alpha \fallingdotseq V\beta \times \frac{1}{10 + 0.033\ (25 - \text{Ambient temperature})}$$

NOTE:

The temperature sensing resistor (R156) is used to compensate temperature.

The relationship between $V\alpha$ and $V\beta$ is as shown by the above equation.

When ambient temperature is 25°C, $V\alpha = 1/10V\beta$.

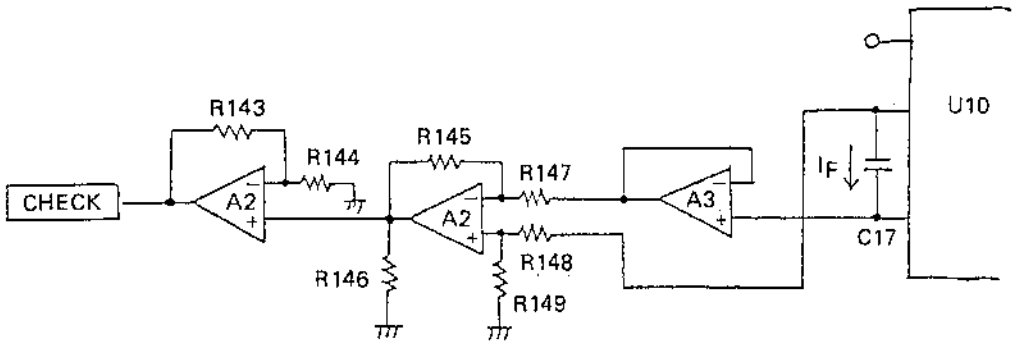
To adjust fluctuation of this temperature sensing resistor, VR2 (R155) is used.

However, this VR has been already adjusted as the light measuring board assembly (6-33).

(Normally, this variable resistor is set to the center.)

(3) Output side of the light measuring IC

Fig. 13

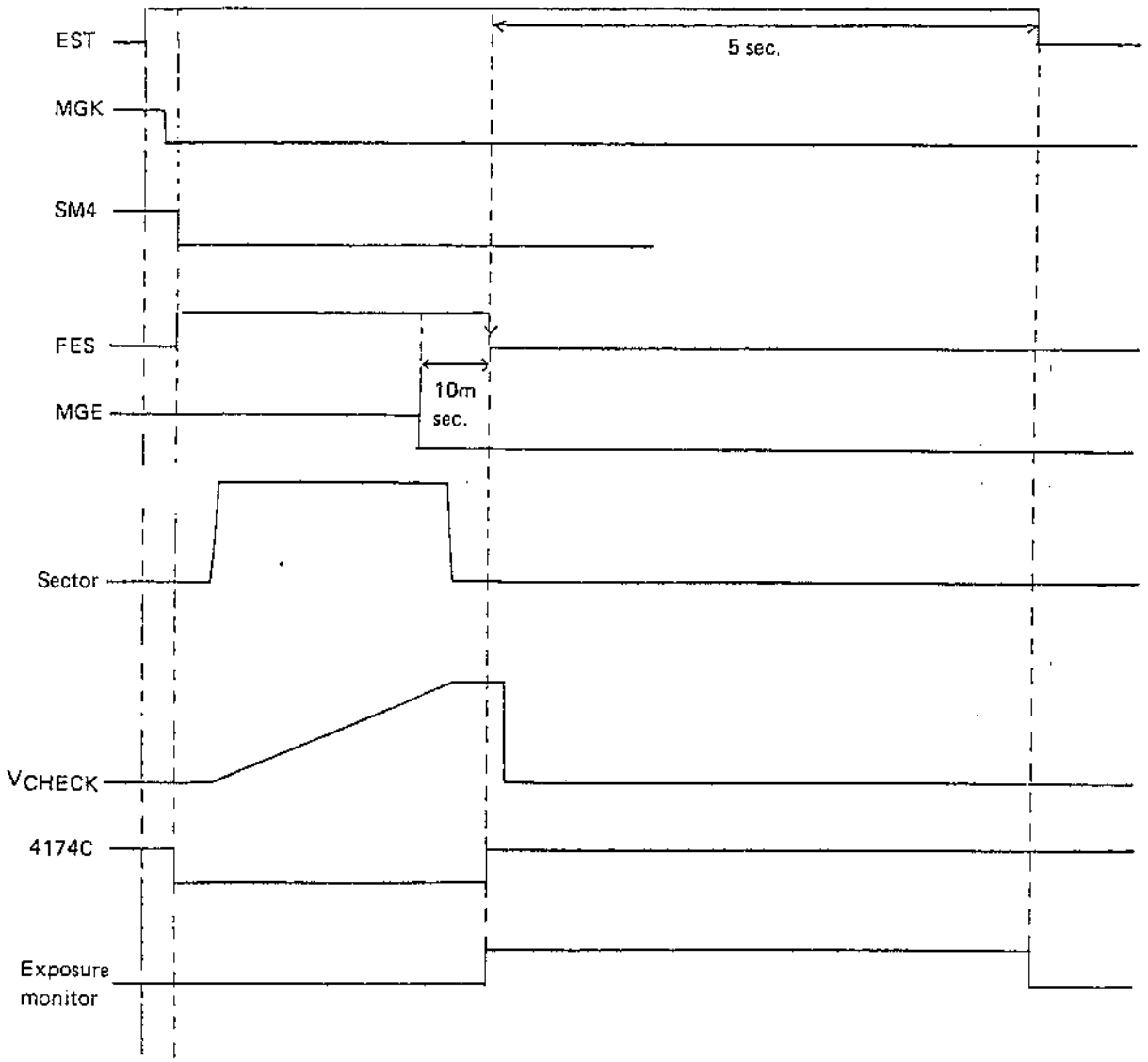


$$V_{CHECK} \fallingdotseq 2.67 \times \frac{I_F}{C} \times t$$

$$\therefore \boxed{V_{CHECK} = 2.67 \times \frac{t}{C} \times Ip \times \exp\left\{\frac{q}{hT} \times (ISO + VR) \times \frac{1}{10 + 0.033\,(25 - \text{Temeprature})}\right\}}$$

(4) Timing chart

Fig. 14



(5) Exposure monitor displays

Displays are made as shown below in response to V_{CHECK} at FES ⌐¬ in the above shown timing chart.

V_{CHECK}	Q1	Q2	Q3	Q4	Exposure monitor
3.2V or more	H	L	L	H	"+" display
3.2 ~ 0.2V	L	H	L	L	"EXP" display
0.2V or less	L	L	H	H	"—" display

When level of Q4 is "H", the buzzer built in the remote control sounds giving warning output.

(6) Adjustment of exposure monitor

The exposure monitor is adjusted to V_{CHECK} = 0.8V under the following conditions.

Conditions:
- Used film: NSP
- Brightness: LV 10
- Lens: f = 135 mm
- F-value: F5.6
- Shutter speed: 1/30
- ISO: 100

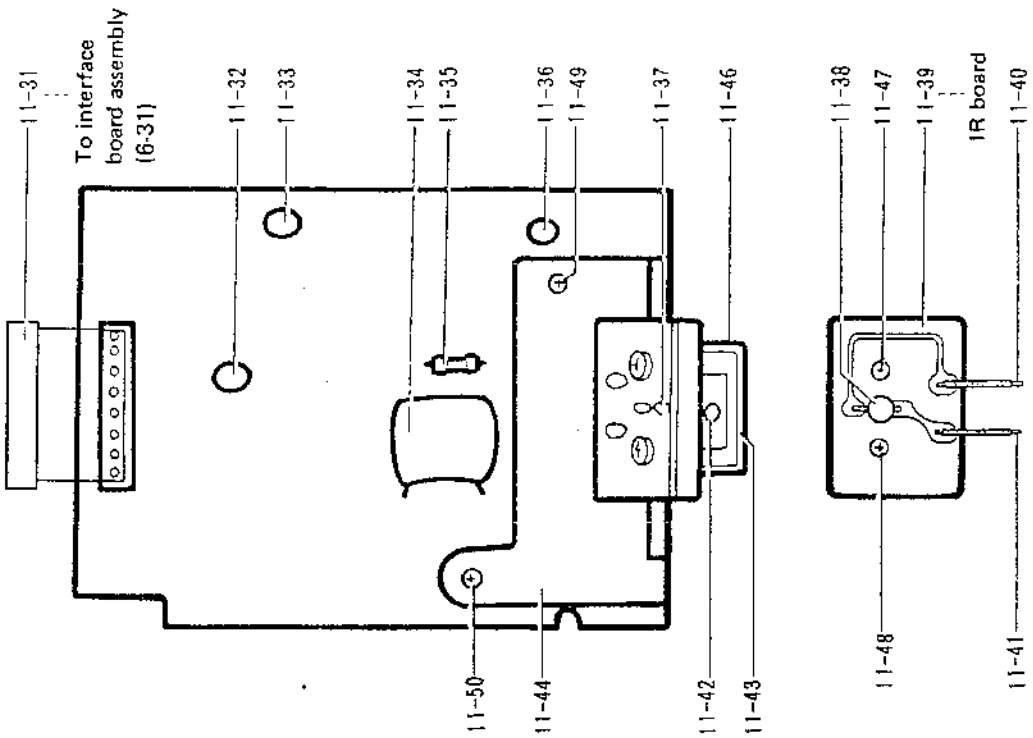
To adjust the exposure monitor, voltage is changed by the variable resistor (R135) installed on the mirror PCB assembly (5-100). The adjusting width is 0.8±0.03V (about ±0.05 step).

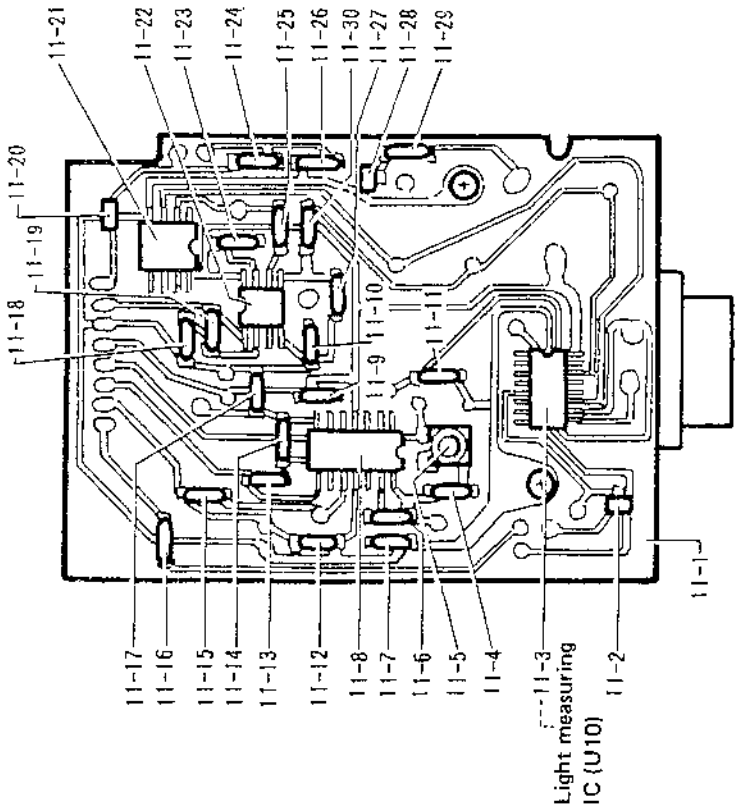
(7) Others

The exposure monitor does not display when:

1) When no film holder is mounted (For example, when instant film holder is used)
2) When the shutter speed is set to "Bulb".

DETAILED VIEW OF THE LIGHT MEASURING BOARD ASSEMBLY (6-33)





11-31 (CN8-1)	
1	FES
2	ISO
3	ISO-2
4	VR
5	VDD
6	GND
7	CHECK
8	EST

Fig. 15

10.2 Battery Checker (B.C.) circuit → CPU assembly

(1) When checking the battery

1) The battery is checked when:

- When the power switch (main switch (SW1)) is turned on.
- When the last time was "B.C. level OK" . . . When counting exceeds 20 times
- When the last time was "B.C. warning level" . . . When counting exceeds 4 times.

2) The count up is made when: (Resets when battery is checked)

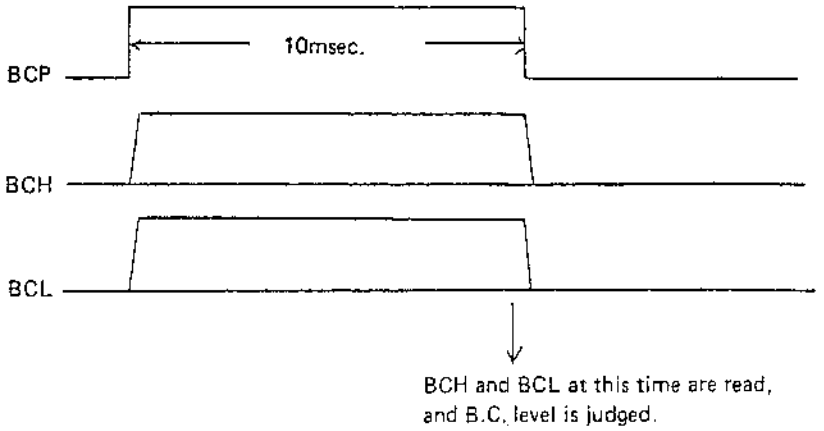
- Mirror up operation . . . . . Count up 2 times
- Mirror down operation . . . . . Count up 2 times
- Wind-up operation . . . . . Count up 1 time

NOTE:

When one sequence is made under S mode, count is made for 5 times, total 20 times through 4 sequences.

(2) Timing chart of B.C.

Fig. 16



	BCH	BCL
OK level	H	H
Warning level	L	H
NG level	L	L

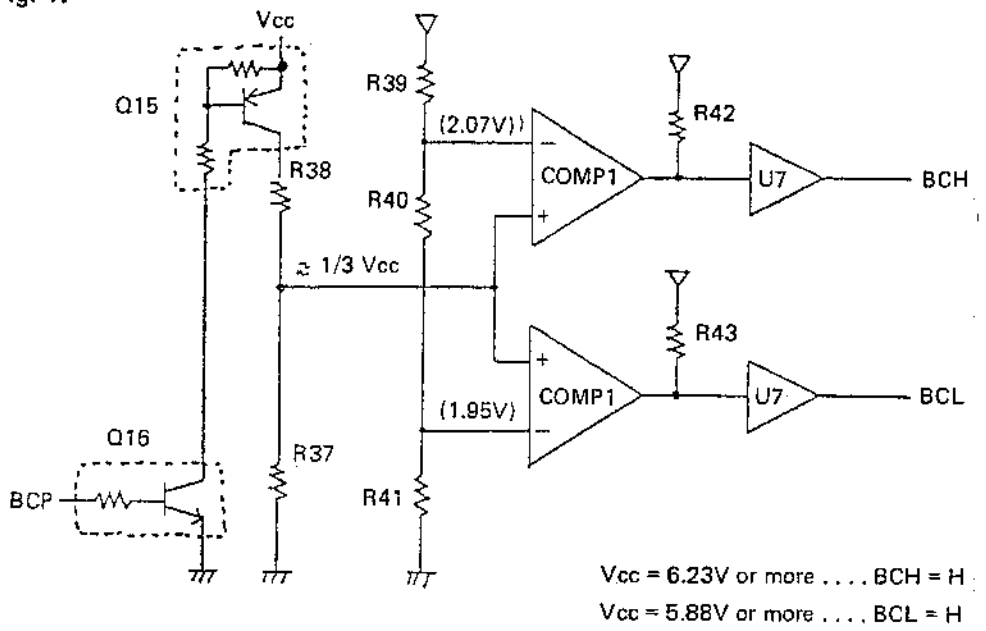
NOTE:

In case of OK level, terminal LEDG is controlled → Green LED

In case of warning level, terminal LEDY is controlled → Orange LED

(3) B.C. Circuit

Fig. 17



(4) Difference between use of battery pack and use of DC power supply

1) When battery pack is used

- Detecting pin switch turns on (On the circuit diagram, S_{EXT} (SW2) is in GND side.)
- Vcc at the time of voltage drop is checked by flowing dummy current (about 7A) during BCP ⎍⎍ as described above.

2) When DC power supply is used.

- Detecting pin switch turns off (On the circuit diagram, S_{EXT} (SW2) is in Vcc side)
- Vcc is checked without flowing dummy current during BCP ⎍⎍. Therefore, B.C. is in OK level since Vcc is always 8V.

(5) When the detecting pin switch (SW2) is defective.

1) When the switch has turned off with the battery pack used, the film is not advanced although B.C. is OK.

2) When the switch has turned on with the DC power supply used, Vcc drops as dummy current flows, causing B.C. NG level.

DETAILED VIEW OF CPU ASSEMBLY (6-30)

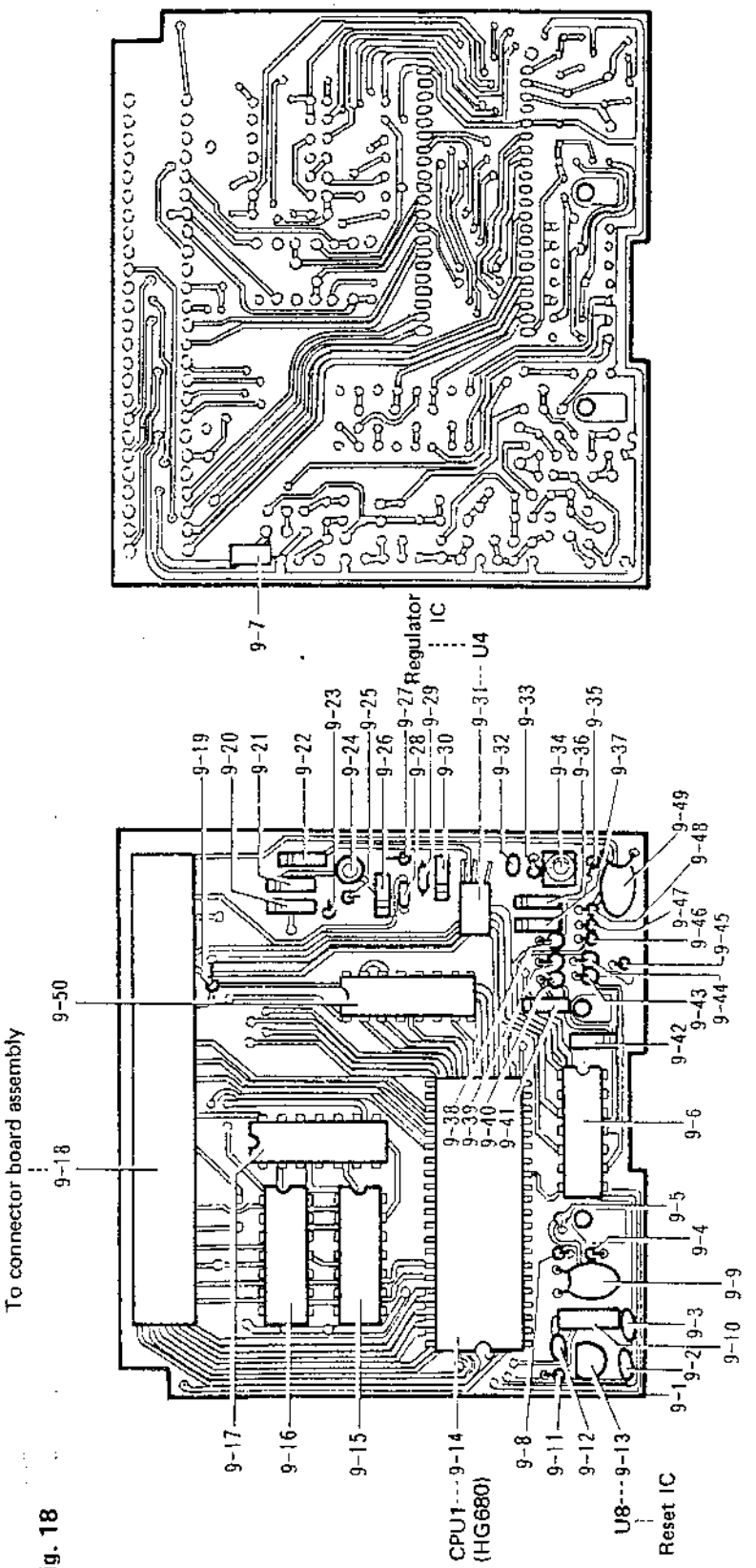


Fig. 18

9-18 (CN3-1)

1	LED-Y	11	GND	21	Vcc	31	C	41	SM3
2	LED-G	12	NC	22	FEED	32	OFF	42	SM2
3	FOK	13	4174C	23	EXT-2	33	SFE	43	SM1
4	SP	14	MGE	24	NC	34	LATCH	44	GND
5	G0	15	EST	25	VM	35	FES	45	VDD
6	G1	16	ABLE	26	FEE	36	GND	46	Vcc
7	G2	17	LSO-2	27	FST	37	MGK	47	MMA
8	G3	18	BCP	28	SMU	38	SMA	48	MMB
9	NC	19	GND	29	FVCC	39	SMB	49	MM2
10	LATCH-2	20	VDD	30	M	40	SM4	50	MM1

10.3 Flash X-contact → Switch board assembly (4-92)

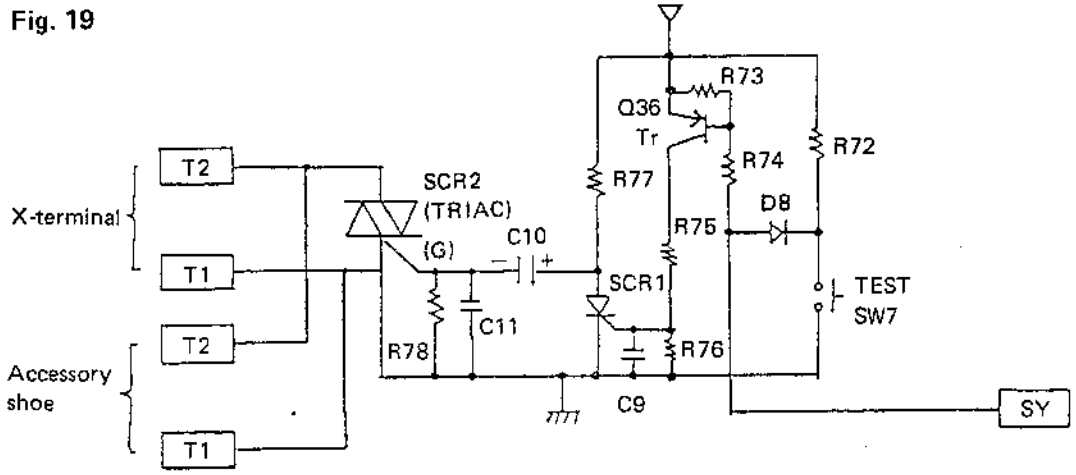
For the X-contact, not mechanical switch but Triac (SCR2) is used, mainly because:

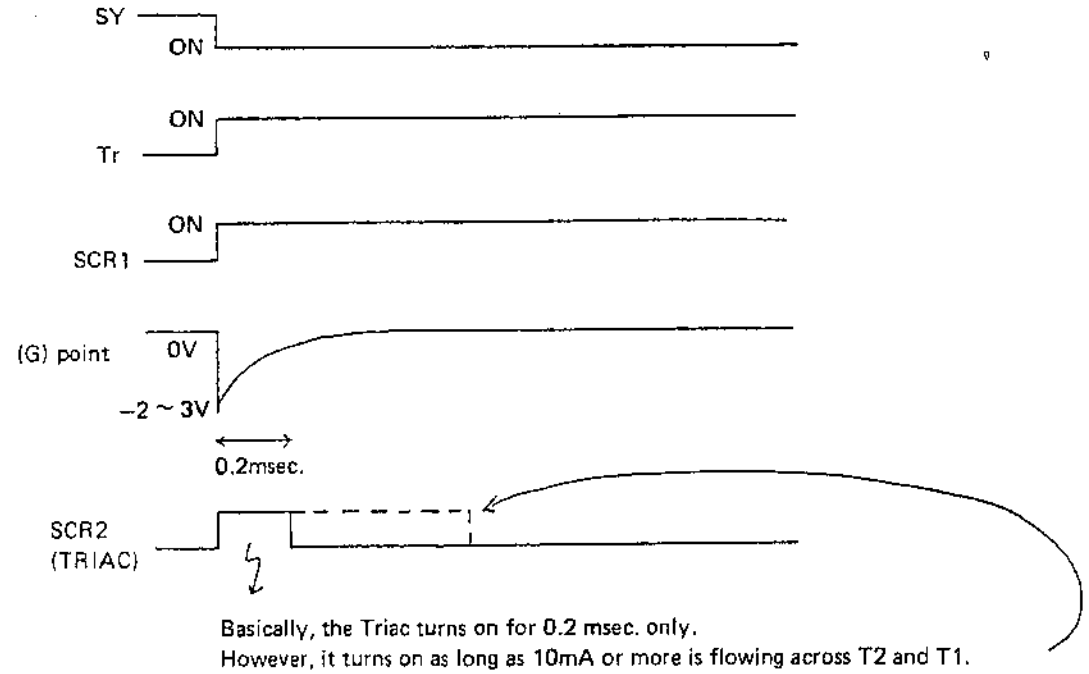
1) To increase the durability by now flowing flash trigger current to the mechanical switch.

2) To prevent faulty flash firing due to chattering of the mechanical switch.

(1) Operations

Fig. 19





Basically, the Triac turns on for 0.2 msec. only.
However, it turns on as long as 10mA or more is flowing across T2 and T1.

(2) Infrared (IR) synchronizer

As described above, the Triac turns on for 0.2 msec. basically. However, for the normal flashes, there is no problem at all.

Among various oscillators which have a built-in infrared LED, however, some of them do not respond unless trigger signal continues 2 msec. or longer.

(Naturally, time lag up to firing is 2 msec or longer, and the flash does not fire when shutter speed is 1/500 or faster.)

As the results of the survey, two products shown below fall into this category.

Sunstar IRT-190

Hensel IR Triggering MARK II

These two products cannot be used for Fuji GX680. When using, the oscillator must be modified.

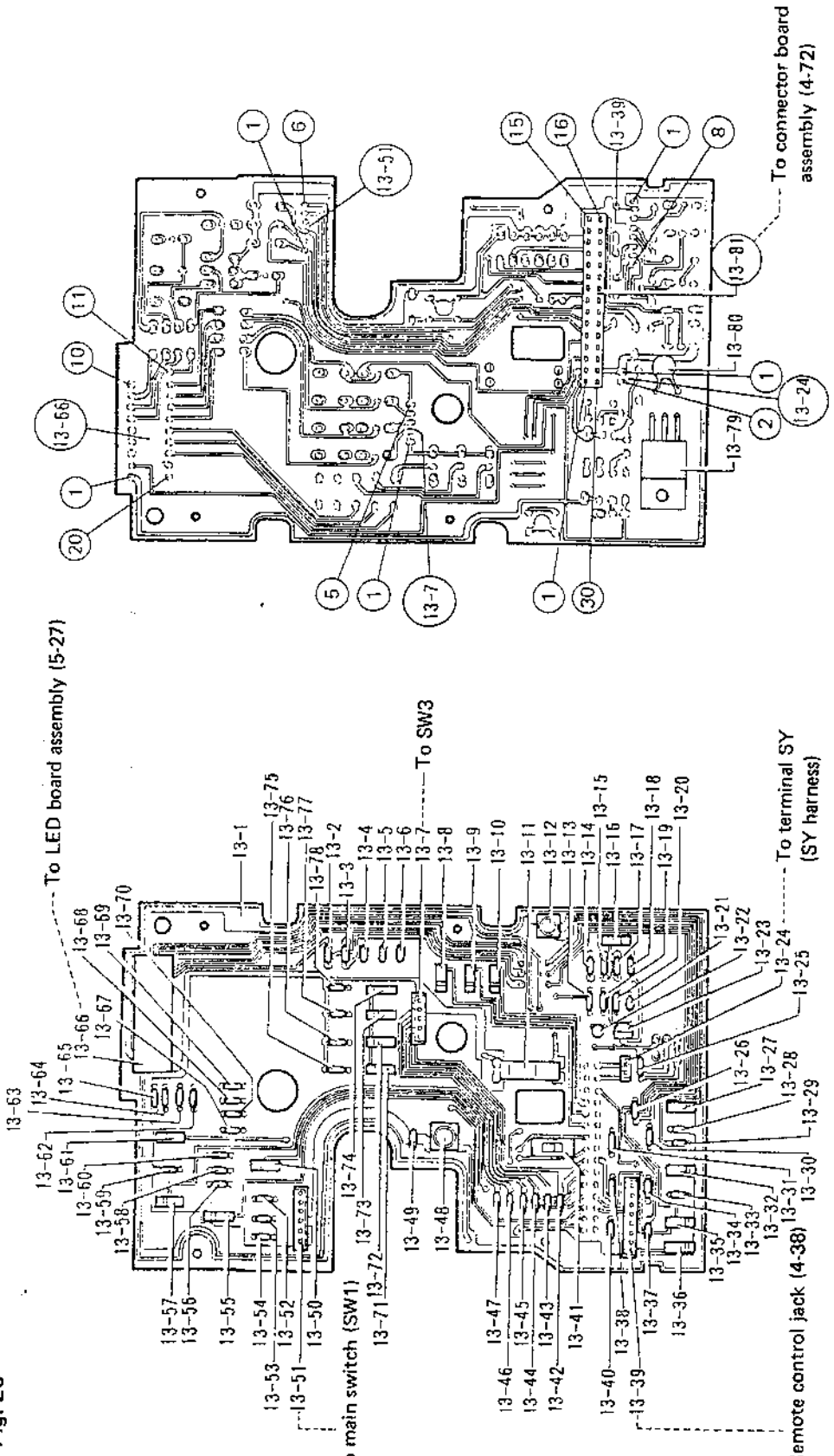
(3) For use of class M bulb

The withstanding voltage and surge current of the Triac used in Fuji GX680 are respectively 600V and 80A.

When a class M bulb fires, the peak current is about 12A, and therefore, there is no problem as long as the Triac is concerned.

Further, there will be no problem for the X-terminal as it is close enough to the Triac. It should be taken into considerations, however, that a considerable loss will result as the accessory shoe is distanced from the Triac.

DETAILED VIEW OF SWITCH BOARD ASSEMBLY (4-92)


To connector board assembly (4-72)
To LED board assembly (5-27)
To SW3
To terminal SY (SY harness)
To main switch (SW1)
Remote control jack (4-38)

13-7	
1	GND
2	G3
3	G2
4	G1
5	G0

13-24	
1	GND
2	T2
	SMU-2

13-39	
1	GND
2	VDD
3	LED(G)
4	LED(Y)
5	BZ
6	SMU-2
7	SP-2
8	SFE-2

13-51	
1	M
2	C
3	OFF
4	GND
5	(OFF)
6	COM

13-66			
1	VDD	11	EE
2	SY2	12	G0
3	Fo	13	G1
4	F	14	G2
5	F Vcc	15	G3
6	FES	16	LED-3
7	FOK	17	LED-2
8	FST	18	LED-1
9	GND	19	LED(Y)
10	ISO	20	LED(G)

13-81			
1	SY	11	G2
2	Fo	12	G3
3	F	13	(OFF)
4	Q3	14	VDD
5	Q2	15	ISO
6	Q1	16	SP
7	OFF	17	FOK
8	COM	18	LED(G)
9	G0	19	LED(Y)
10	G1	20	FEE
11	G2	21	FST
12	G3	22	SMU
13	(OFF)	23	F Vcc
14	VDD	24	M
15	ISO	25	C
16	SP	26	SFE
17	FOK	27	FES
18	LED(G)	28	Q4
19	LED(Y)	29	GND
20	FEE	30	T2

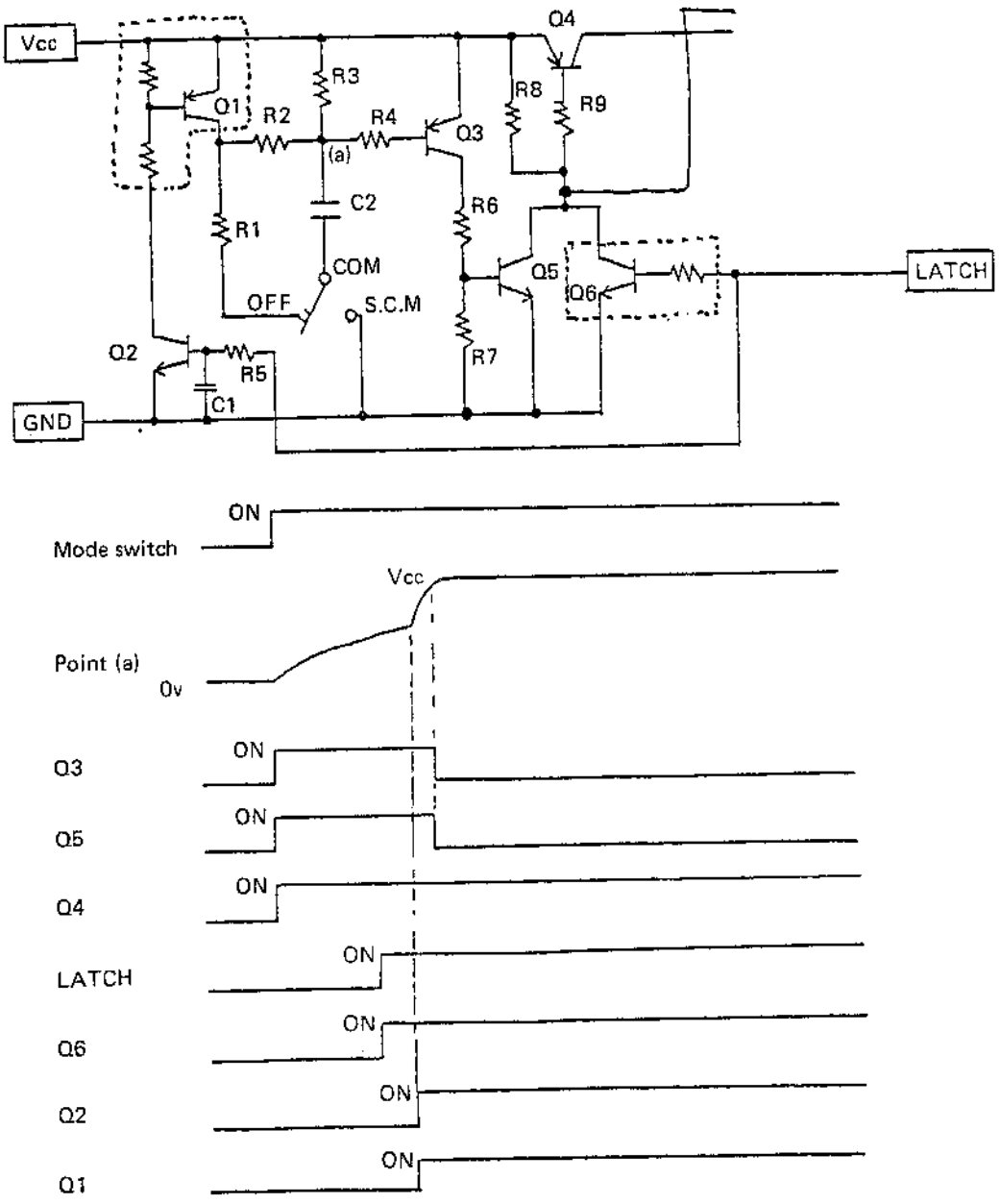
Fig. 20

10.4 Power supply hold circuit .... Connector board assembly (4-72) and CPU assembly (6-30)

The power supply hold circuit is controlled by the CPU (HG680). With this circuit, even if the mode switch (SW1) is turned off during an operation, the power is held until one sequence is completed, or even if the mode switch is turned continuously, the power is automatically turned off when 15 minutes are elapsed.

(1) Circuit description

Fig. 21



When the power is turned on, the CPU operates, and when LATCH = H, the transistor Q4 (for power supply) is controlled by the LATCH signal as shown above.

(2) Difference between use of the battery pack and DC power supply

1) When the battery pack is used

- The detecting pin switch (SW2) turns on (On the circuit diagram, SW2 is in GND side.)
- Since the LATCH signal is controlled by the CPU only, the circuit operates as described above.

2) When the DC power supply is used.

- The detecting pin switch (SW2) turns off (On the circuit diagram, SW2 is in Vcc side.)
- The 15 minute automatic turn off function does not work since the LATCH signal is controlled by both the CPU and external transistor.

(3) When the detecting pin switch (SW2) is defective:

1) When the switch has turned off with the battery pack used, the automatic turn off function does not work.

2) When the switch has turned on with the DC power supply used, the automatic turn off function actuates. Actually, however, the battery check is resulted in NG and the camera does not operate from the beginning.

DETAILED VIEW OF CONNECTOR BOARD ASSEMBLY (4-72)

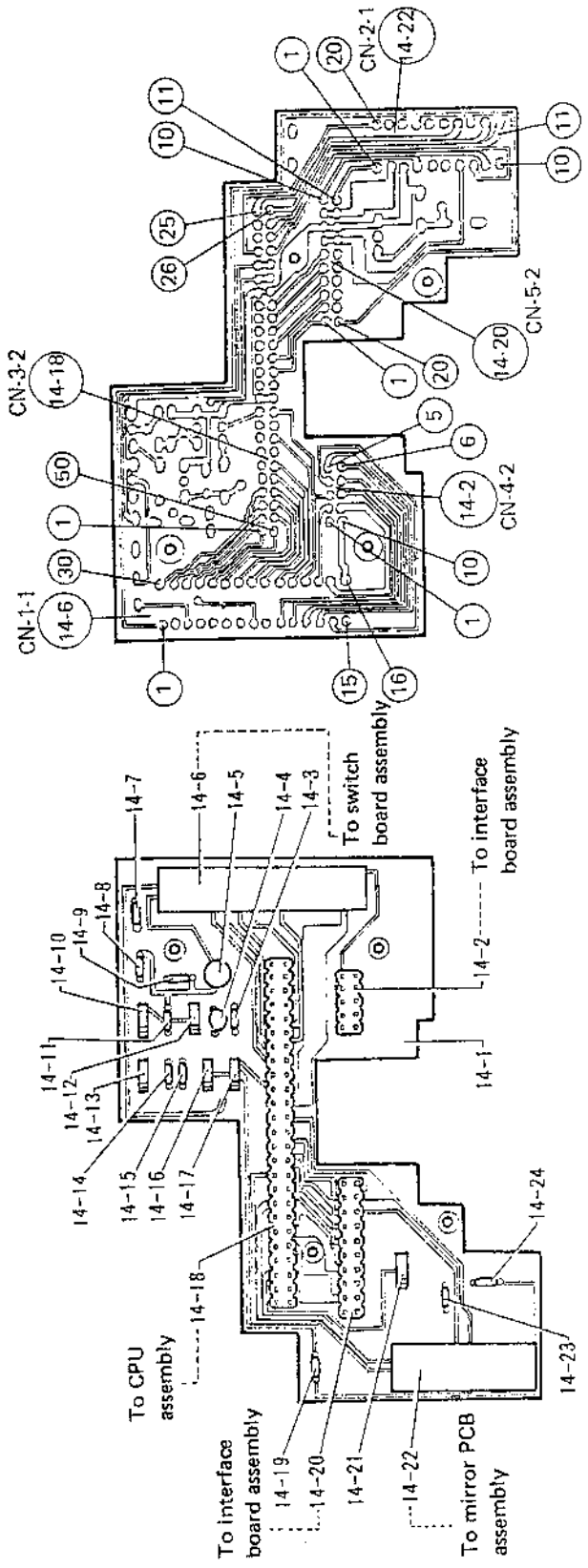


Fig. 22

14-2	
1	SV
2	Q4
3	FF5
4	F0
5	F
6	Q3
7	Q2
8	Q1
9	T1
10	T2
11	Q2
12	Q3
13	F
14	F0
15	SV

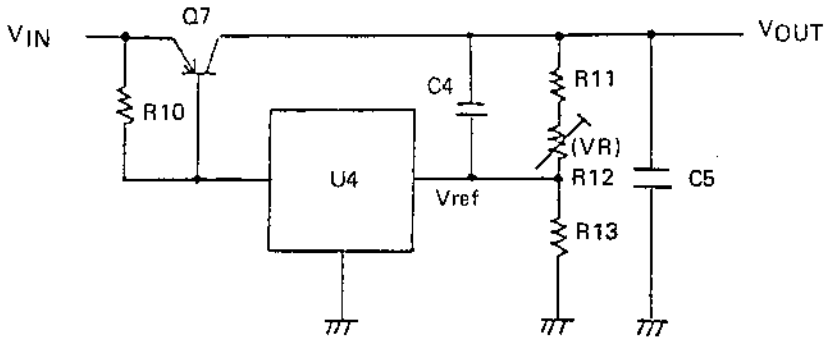
14-6																
1	ISO	16	T2	1	LED(Y)	16	ABLE	31	VDD	46	M	1	SMA	16	CHECK	16	EXT
2	VDD	17	GND	2	LED(G)	17	ISO2	32	GND	47	F Vcc	2	SMB	17	Vcc	17	ISO
3	(OFF)	18	Q4	3	FOK	18	BCP	33	SM1	48	SMC	3	SM4	18	GND	18	JOINT
4	G3	19	FES	4	SP	19	GND	34	SM2	49	FST	4	SM3	19	VR	19	ABLE
5	G2	20	SFF	5	G0	20	VDD	35	SM3	50	FEE	5	SM2	20	4174-C	20	FEED
6	G1	21	C	6	G1	21	Vcc	36	SM4			6	SM1		MGK		
7	G0	22	M	7	G2	22	FEED	37	SMB			7	VDD		VDD		
8	COM	23	F Vcc	8	GJ	23	EXT2	38	SMA			8	GND		MMB		
9	OFF	24	SMU	9	NC	24	NC	39	MGK			9	Vcc		MMA		
10	Q1	25	FST	10	LATCH2	25	VM	40	GND			10	VR		NC		
		26	FEE	11	GND	26	MM1	41	FES			11	CHECK		MM2		
		27	LED(Y)	12	NC	27	MM2	42	LATCH			12	Vcc		MM1		
		28	LED(G)	13	4174-C	28	MMB	43	SFE			13	GND		VDD		
		29	FOK	14	MGK	29	MMA	44	OFF			14	VDD		VM		
		30	SP	15	EST	30	Vcc	45	C			15	ISO2		BCP		

10.5 Regulator circuit → CPU assembly

To stabilize CPU operations, a 5V regulator circuit is used, and this circuit is same as that of the film holder.

(1) Circuit description

Fig. 23



U4 controls Q7 so that Vref ≒ 1.26V. It is primarily so designed that the circuit constant of the GX680 is V_{OUT} ≒ 5.0V. However, because of other circuits, the appropriate VR is adjusted so that V_{OUT} = 5.0V ±15mV.

(2) About V_{IN} ~ V_{OUT}

Differential potential between V_{IN} and V_{OUT} is Typ 0.2 to 0.3V.

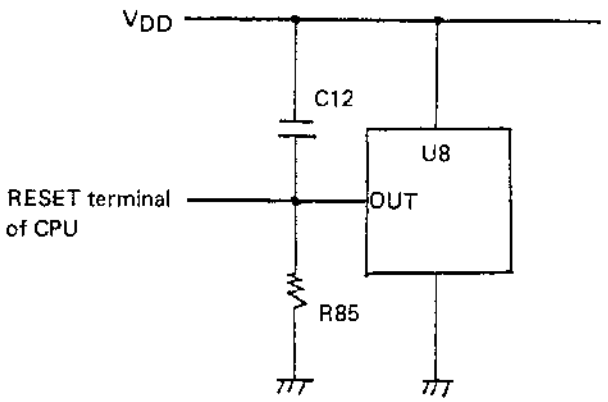
Hence, V_{OUT} = 5.0V can be guaranteed when V_{IN} = 5.2 to 5.3V or more.

10.6 Reset circuit → CPU assembly

The GX680 camera uses a CPU reset circuit to stabilize the operations of the CPU in the camera.

(1) Circuit description

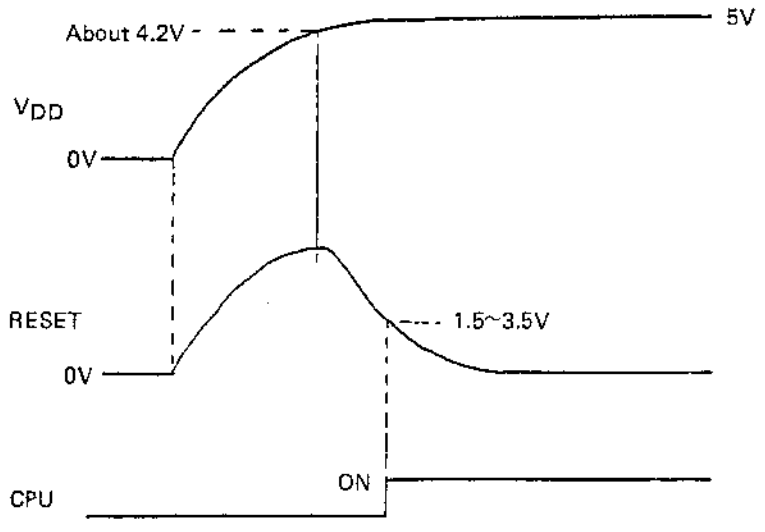
Fig. 24



V_{DD} = About 4.2V or more — OUT of U8 = Open
V_{DD} = About 4.2V or less — OUT of U8 = V_{DD}

(2) Timing chart with power supplied

Fig. 25



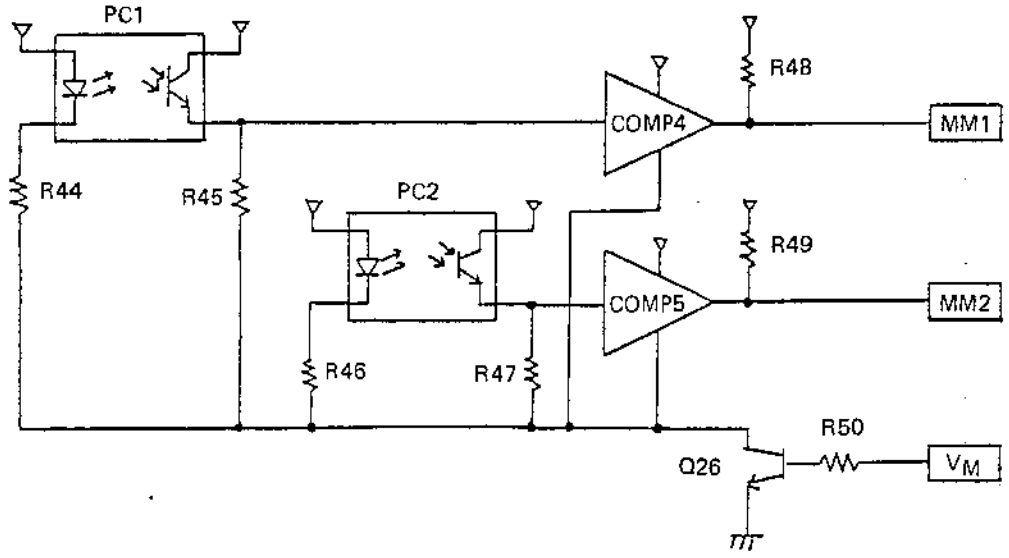
(3) The CPU stops operating when level at terminal RESET is "H", and levels at all output terminals become "L".

10.7 Mirror operating circuit → Mirror PCB assembly

For the mirror UP-DOWN operations, two photocouplers are used to detect mirror positions, and for the UP operation, a servo circuit is used to minimize camera shaking.

(1) About position detecting photocouplers

Fig. 26



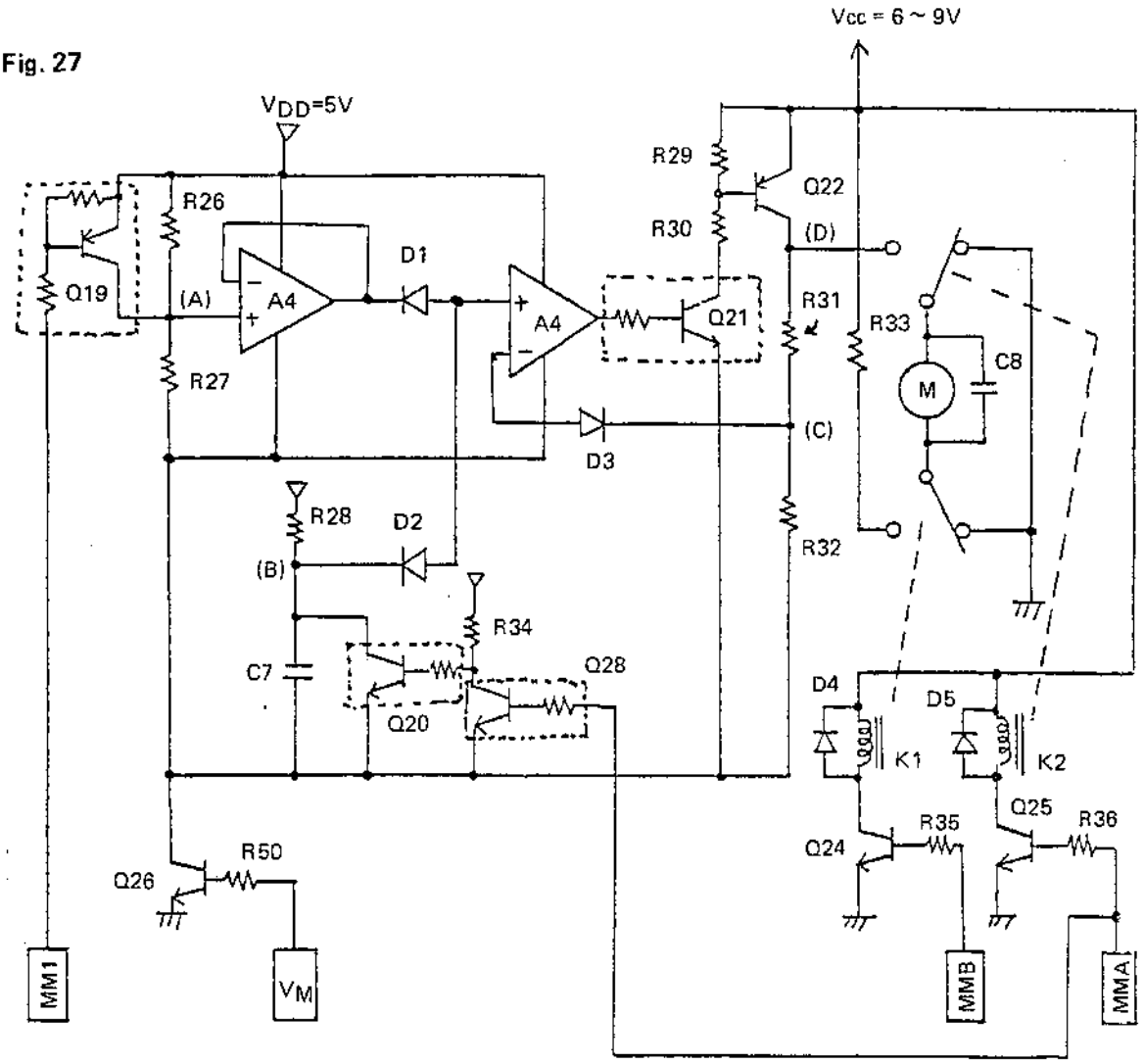
- The comparator is of a Vref (reference voltage) built-in type, and
  When input is 2.9V or more, output level is "H".
  When input is 1.0V or less, output level is "L".
- The photocouplers check 3.5V or more output with the reflector applied, and 0.5V or less output with the reflector not applied (side cover status)
  [The side cover has a groove to change deflecting direction.]

	Down position	....	Mirror only UP position	....	UP position
MM1	L	L	H	H	H
MM2	H	L	L	L	H

- The photocoupler is not operated normally with V_M = L because the current consumption is large, and is operated with V_M = H at only when moving the mirror up and down.

(2) Mirror up servo circuit

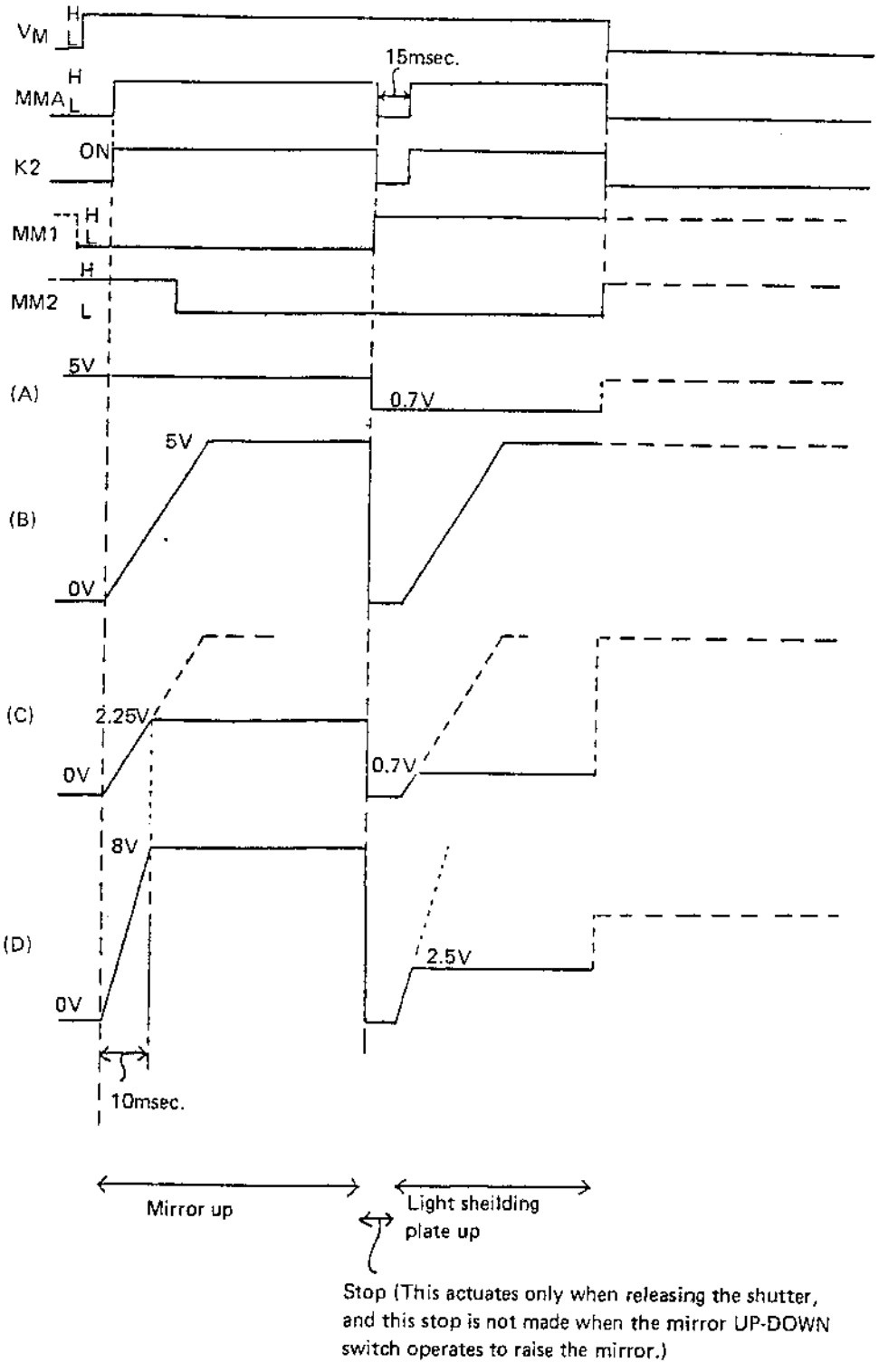
Fig. 27



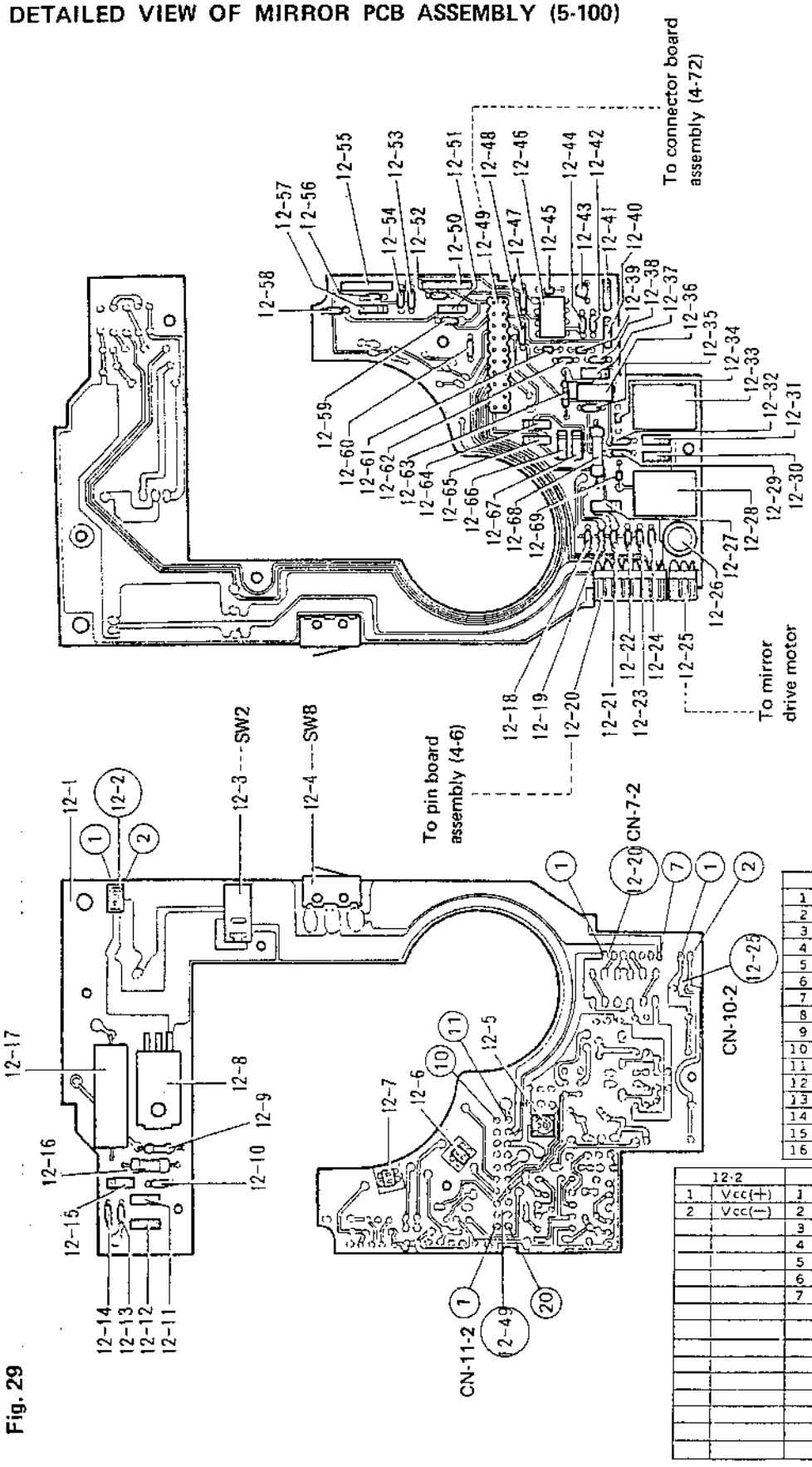
- As well as the photocoupler circuit, this servo circuit operates when V_M = H only.
- To prevent camera shaking, voltage is applied gradually during rising of the motor, the motor stops for 15 msec. in between mirror up and light shielding plate up, and for the light shielding plate up, low voltage operation (2.5V) is made. (Refer to the timing chart.)
- When moving the mirror down, a resistor is connected in series with the motor and power is reduced to prevent shock.

(3) Mirror up/light shielding plate up timing chart (Vcc = 8V)

Fig. 28



DETAILED VIEW OF MIRROR PCB ASSEMBLY (5-100)

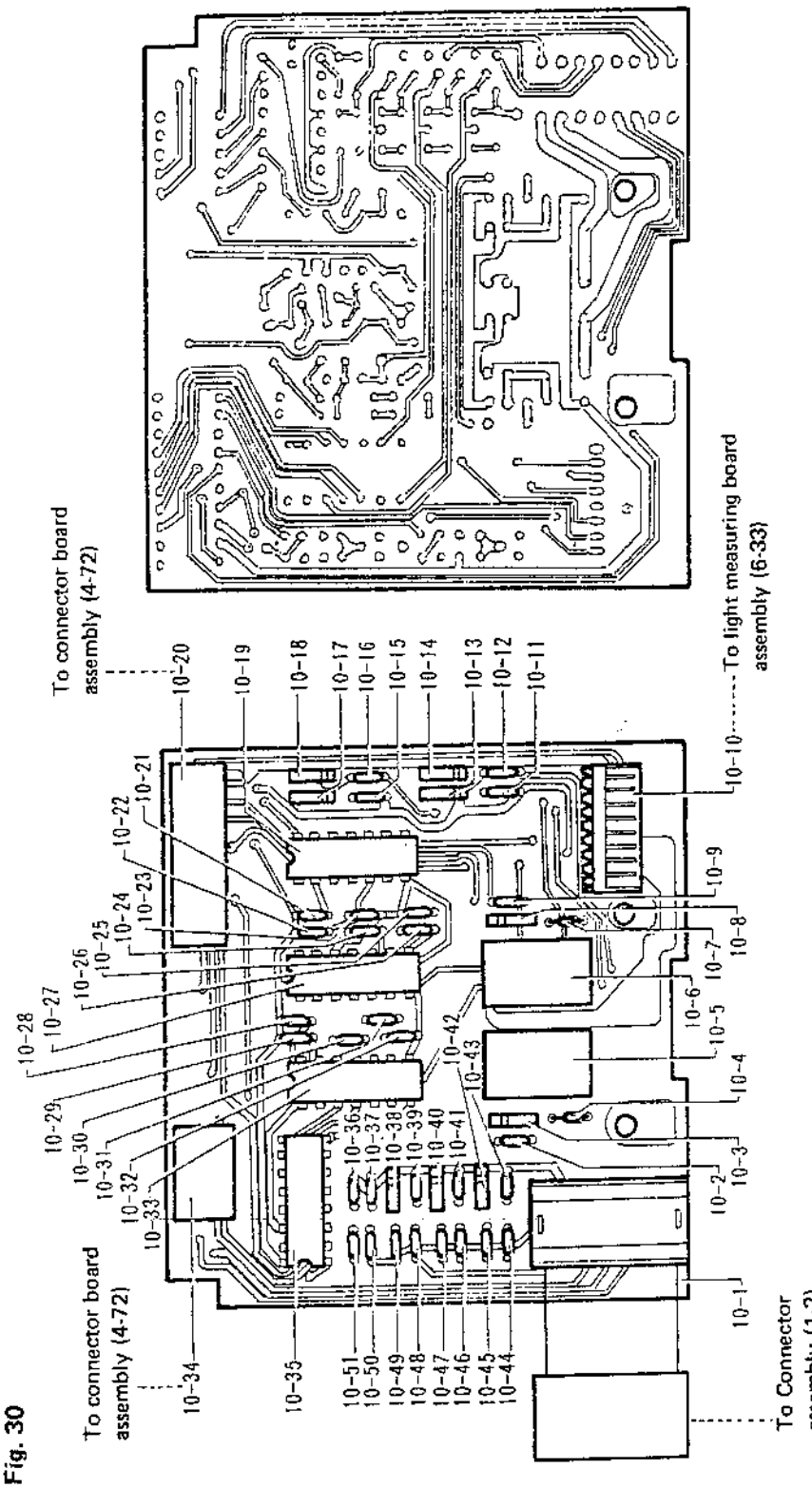


12-49			
1	MM2	17	VDD
2	MM1	18	MMB
3	VDD	19	MMA
4	VM	20	NC
5	BCP		
6	EXT		
7	ISO		
8	JOINT		
9	ABLE		
10	FEED		
11	CHECK		
12	Vcc		
13	GND		
14	VR		
15	4174-C		
16	MGN		

12-2		12-20		12-25	
1	Vcc(+)	1	GND	1	MB
2	Vcc(−)	2	FEED	2	MA
		3	ABLE		
		4	DATA		
		5	ISO		
		6	JOINT		
		7	Vcc 2		

Fig. 29

DETAILED VIEW OF INTERFACE BOARD ASSEMBLY (6-31)

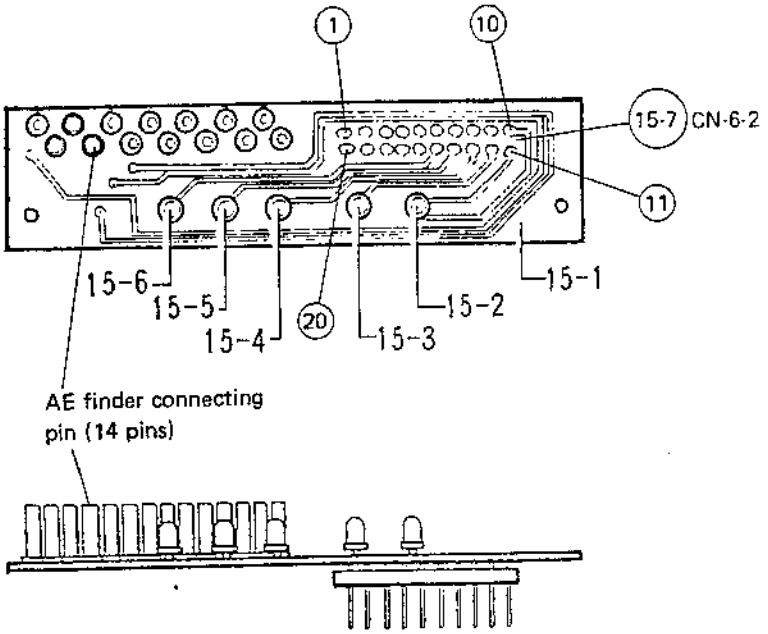

To connector board assembly (4-72)
To light measuring board assembly (6-33)
To connector board assembly (4-72)
To Connector assembly (1-2)

10-34(CN4-2)		10-20(CN5-2)			10-10(CN8-2)		6-40(CN9-1)		
1	SY	1	SMA	13	1	EST	1	T2	13	GND
2	Q4	2	SMB	14	2	CHECK	2	T1	14	VDD
3	FES	3	SM4	15	3	GND	3	F0	15	M−
4	F0	4	SM3	16	4	VDD	4	F	16	M+
5	F	5	SM2	17	5	VR	5	SEC		
6	T2	6	SM1	18	6	ISO-2	6	SE0-E		
7	T1	7	VDD	19	7	ISO	7	ST		
8	Q1	8	GND	20	8	FES	8	S		
9	Q2	9	Vcc				9	NC		
10	Q3	10	VR				10	Y		
		11	ISO				11	MGK		
		12	MGK				12	MGK		

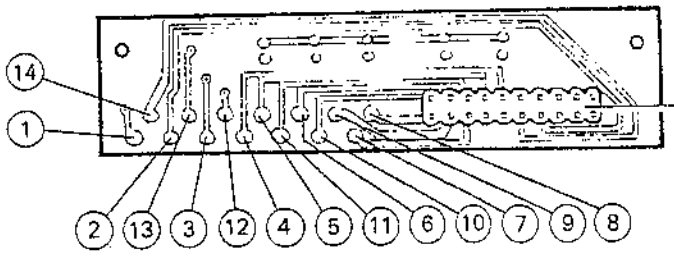
Fig. 30

DETAILED VIEW OF LED board assembly (5-27)

Fig. 31



15-7	
1	ISO
2	GND
3	FST
4	FOK
5	FES
6	F Vcc
7	F
8	F0
9	SY2
10	VDD
11	LED(G)
12	LED(Y)
13	LED1
14	LED2
15	LED3
16	G3
17	G2
18	G1
19	G0
20	FEE

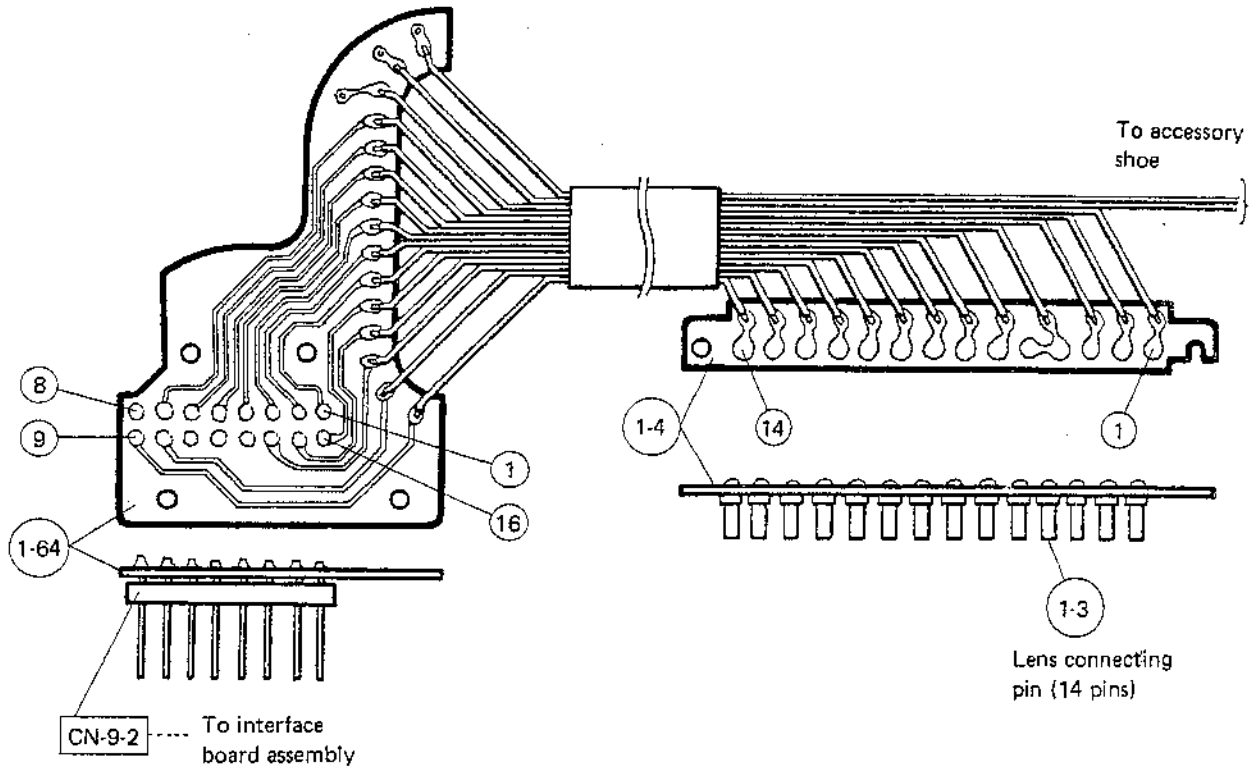


Contact pin	
1	SY2
2	F
3	FOK
4	G3
5	G1
6	FEE
7	FST
8	ISO
9	GND
10	G0
11	G2
12	FES
13	F0
14	F Vcc

DETAILED VIEW OF CONNECTOR ASSEMBLY (1-2)

Fig. 32

Ref. No.	Part No.	Name	Components
1-2	110A 4574720	Connector assembly	1-3, 1-64
1-3	110A 4574730	Pin board assembly	1-4, 1-5
1-4	110B 4574980	Pin board	
1-5	109B 4572180	Contact	



CN-9-2	
1	MA
2	MB
3	VDD
4	GND
5	MGE
6	MGK
7	SY
8	
9	T2
10	T1
11	F0
12	F
13	SEC
14	SEE
15	ST
16	S

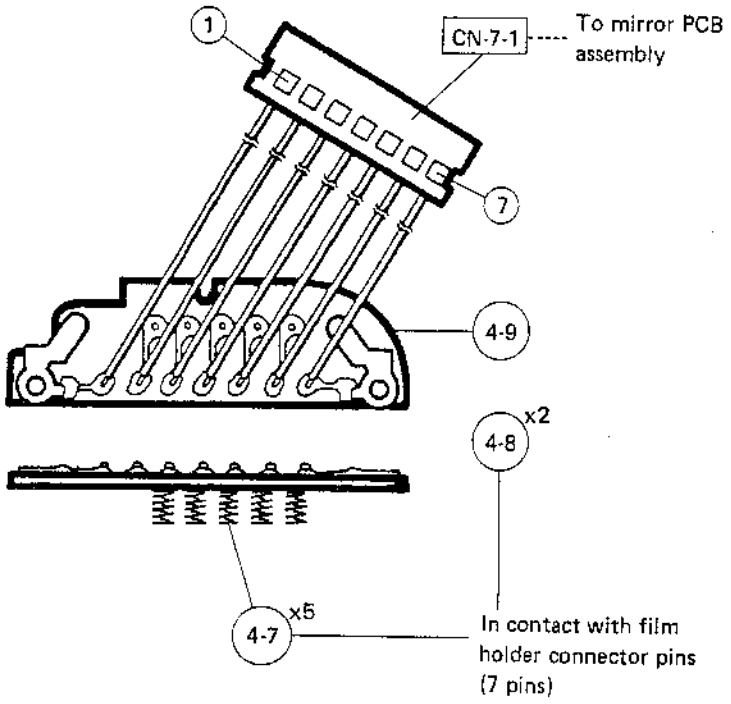
S-PIN	
1-3	
1	MA
2	F0
3	MB
4	G
5	SYG
6	SY
7	F
8	ST
9	SEE
10	SEC
11	S
12	VD
13	MGE
14	MGK

DETAILED VIEW OF PIN BOARD ASSEMBLY (4-6)

Fig. 33

CN-7-1	
1	GND
2	FEED
3	ABLE
4	DATA
5	ISO
6	JOINT
7	Vcc 2

Ref. No.	Part No.	Name	Components
4-6	110A 4574680	Pin board assembly	4-7, 4-8, 4-9
4-7	50B 4567094	Spring	
4-8	109B 4567101	Contact	
4-9	110B 4574930	Pin board	



DETAILED VIEW OF RECEPTACLE ASSEMBLY (4-37)

No.	Part No.	Part Name	Q'ty
1	112B 4575230	Remote harness	1
2	112B 4575200	SY harness	1
3	46B 4569120	Base plate	1
4	16B 4569560	Shutter release button	1
5	17B 4569570	Shaft	1
6	50B 4124940	Spring	1
7	112A 3281051	Synchro-socket assembly	1
8	108B 3281790	Lug	1
9	111B 383060	Cord clamp	1
10	111M 170301N	Screw	1
11	150M 0171N	Nut	1
12	112K 586520	RP6-10R-8S	1

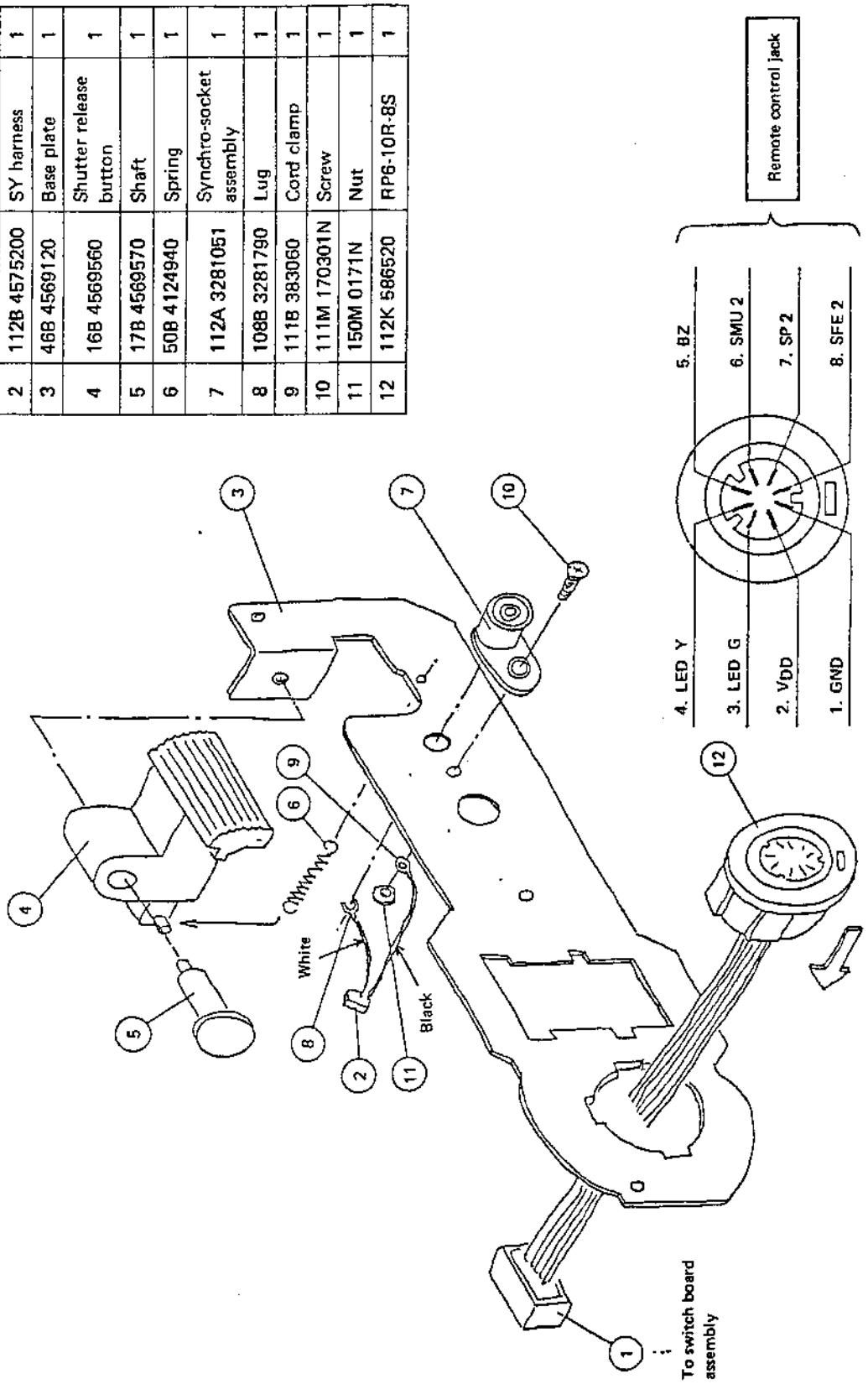
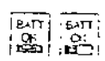
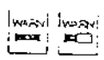
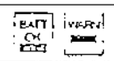
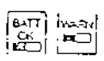
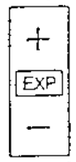
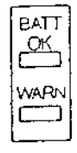


Fig. 34

II. TROUBLESHOOTING OF FUJI GX680 PROFESSIONAL

1. MONITOR DISPLAY AND CORRECTIVE ACTION

Monitor item	LED display	LED lighting/blinking	Condition	Warning buzzer	Item to be checked	Corrective action
1. Power ON-OFF and battery check		• Green LED lights or blinks	• Power ON (Battery charged)	———	None	Not required
		• Orange LED lights or blinks	• Power ON (Battery not changed sufficiently)	———	None	• Recharge or replace the battery.
		• Both green and orange LEDs gone out	• Power OFF (No power is supplied)	———	• Incorrectly installed battery pack	• Reinstall the battery pack correctly.
					• Main switch and power cord of the DC power supply	• Turn on the main switch and connect power cord correctly.
					• Mode dial "OFF"	• Set mode switch to ON
					• Automatic OFF due to no shot during 15 minutes.	• Set mode switch to OFF once and to ON again.
2. Stand-by for taking picture		• Either green or orange LED lights.	• The camera is ready to take picture.	———	None	Not required
		• Either green or orange LED blinks	• The camera is not ready to take picture. (The shutter cannot be released) • When an instant film holder is mounted, the shutter can be released even if either the green or orange LED is blinking.	———	• Installation of an interchangeable lens	• Mount the interchangeable lens correctly.
					• Roll film holder installation or installing position	• Mount the roll film holder correctly.
					• Existence or non-existence of dark slide of roll film holder.	• Draw out the dark slide.
					• AE mode of shutter speed dial	• Set to AUTO only when using AE finder.
					• Mirror position (after shot with mirror up)	• Move the mirror down.
3. Abnormal exposure warning  Does not function when using an instant film holder		• Red + LED lights. Buzzer sound at the same time (When remote release is used.)	• +2 or more overexposure	• 700Hz buzzer sound for 5 seconds. (generated from remote release)	• Shutter speed and aperture setting	• Reset correctly.
					• ISO dial setting ———	• Reset film speed correctly.
					• Bellows installation (light leaking due to detached bellows)	• Reinstall the bellows.
					• Excessive back light (High key)	• The + LED may display even within ±2.
		• Green [EXP] LED lights	• Exposure is within ±2	———	None	Not required
		• Red − LED lights. Buzzer sound at the same time (When remote release is used.)	• −2 or more underexposure	• 700Hz buzzer sound for 5 seconds. (generated from remote release)	• Shutter speed and aperture setting	• Reset correctly.
					• ISO dial setting	• Reset film speed correctly.
					• Flash firing condition	• Check the flash for firing
					• Excessive back darkness (Low key)	• The − LED may display even within ±2
4. Camera abnormal operation warning 		• Green and orange LEDs on the stand-by monitor blinks alternately. At the same time, buzzer sounds.	• A trouble has occured on the camera or lens.	• 3.5kHz buzzer sound for 3 seconds (generated from the film holder)	• Contact between the camera and lens	• Clean the contact*
					• Shutter blade opening/closing	• Repair the lens at a service station.
					• Mirror drive	• Repair the camera body at a service station.
		• Either green or orange LED blinks on the stand-by monitor. At the same time, buzzer sounds, and LED (liquid crystal display) on the film holder blinks.	• A trouble has occurred on the roll film holder • Improperly loaded film	• 3.5kHz buzzer sound for 3 seconds (generated from the film holder)	• Contact between film holder and camera	• Clean the contact *
					• Film transportation	• Repair the film holder at a service station.
					• Existence or non-existence of inner frame	• Insert the inner frame into the film holder.
					• Leader paper winding on the spool	• Reload the film correctly.
5. End frame warning	———	———	• Last one frame remained for both 120 and 220 film	• 1 KHz buzzer sound for 2 seconds (generated from the film holder)	• LCD (Liquid Crystal Display) exposure counter (generated at 9EXP for 120 or 18EXP for 220)	Not required.

* In this table, { ▣ } denote "Lighting" and { ▣ } denote "Blinking".

* When contact is poor, remove dust by means of a blower brush, and after blowing dust out, reinstall the lens or film holder correctly.

2. Troubles that do not make NG display

2.1 The camera does not operate when mode switch (SW1) is set to ON.

(The stand-by monitor does not light or blink.)

(1) CHECK 1

→ The camera operates with battery pack used, but does not operate with DC power supply used.

- ○ DC power supply output voltage is 6V or more (New one: 8.0±0.3V)
  - → Check the battery detecting pin (7-40) (interlocked with SW2) (Refer to I-10-10.2 above.)
- ○ DC power supply otuput is below 6V
  - → Defective DC power supply

→ The camera operates with the DC power supply used, but does not operate with battery pack used.

- ○ Is the battery pack charged sufficiently ?
  - → Recharge it.
- ○ When the battery pack is charged sufficiently (when the same result occurs again after recharging)
  - → Check the battery connector pin (4-4). When contact resistance is too high, this trouble occurs. (Refer to I-10-10.2.)

→ The camera does not operate with either the DC power supply or battery pack used (or operation delays or NG is resulted when the battery pack is used)

- ○ Poor contact of the battery connector pin (4-4)
  - → Check the contact for weakness, existence of dust, etc.
- ○ Broken lead wire across the battery pin and mirror board
  - → Check the lead wire for breakdown.
- ○ Incorrectly inserted CPU assembly
  - → Check the connector.
- ○ As the result of the above checking, when everything is normal, proceed to CHECK 2.

(2) **CHECK 2** (Check at DC power supply mode)

→ When Vcc ≒ 8V and V_{DD} = 0V

- ○ Defective mode switch (SW1)
  - └→ Check the connector for connection, and check the lead wire for broken wire.
- ○ Defective power supply holding circuit (Connector board and CPU assembly)
  - └→ Check the power supply holding circuit with an oscilloscope for the sequence or replace the connector board.

→ When Vcc is extremely low (below 5V) and V_{DD} = 0 to 4.2V

- ○ Short-circuited power supply system
  - └→ Replace each board sequentially. The most suspected board is CPU assembly or mirror PCB assembly.

→ When Vcc ≒ 8V and V_{DD} = below 4.2V

- ○ Defective regulator (U4)
  - └→ Replace the CPU assembly with a new one.

└→ When Vcc ≒ 8V and V_{DD} = 5.0V

- ○ Defective reset circuit (CPU assembly)
  - └→ When voltage at terminal RESET (No. 1 pin) of the CPU is zero volt, it is normal. When it exceeds 1.5V, it is defective. The reset IC (U8) or resistor or capacitor around it must be defective.
- ○ Defective clock system (CPU assembly)
  - └→ Check terminal CL2 with an oscilloscope. When the observed waveform is a sine wave of 0 to 5V 400kHz, it is normal. If not, the oscillator (KBR) or a capacitor around it is defective.
- ○ When the clock system is normal, the CPU assembly (HG680) is defective.

2.2 The stand-by monitor keeps blinking and does not light.

(1) CHECK 1 (Checking ABLE signal from the film holder)

→ The LCD on the film holder is not displaying.

→ The LCD on the film holder is dim and displaying Total Shot.

> When the film holder is abnormal in this way, the stand-by monitor keeps blinking. In this case, refer to the trouble-shooting for film holder.

→ The LCD on the film holder is displaying END.

○ The film has reached to the end. Replace.

→ The dark slide is not pull out from the film holder.

○ Pull out the dark slide.

(Check terminal ABLE (pin board assembly (4-6)) of the connector across the camera and film holder with an oscilloscope.)

→ When voltage at terminal ABLE of the camera is below 0.5V and voltage at terminal ABLE of the film holder is 4.5V or higher:

○ Poor contact of the connector pin.

→ Check the contact pin (4-11), spring (4-7), harness (connector), etc.

→ When voltage at terminal ABLE of the camera is below 0.5V and that at terminal ABLE of the film holder is also below 0.5V:

> The film holder is in a trouble. Refer to the troubleshooting for film holder.

→ When voltage at terminal ABLE of the camera is 4.5V or more and that at terminal ABLE of the film holder is also 4.5V or more.

○ Check terminal $\overline{\text{ABLE}}$ of the CPU assembly (HG680) in the camera.

→ When voltage at terminal $\overline{\text{ABLE}}$ is 4.5V or more, the circuit from the CPU terminal to the contact pin is defective.

→ When voltage at terminal $\overline{\text{ABLE}}$ is below 0.5V, it is normal. Proceed to CHECK 2.

(2) CHECK 2 (Checking signals S and SM3 from the lens)

→ Is the lens mounted correctly ?

└→ Remount the lens correctly.

→ Is the contact clean ?

└→ Clean.

→ Replace the lens with another one.

└→ When condition is normal with another lens mounted, the lens is in trouble.

(Checking by the use of an oscilloscope)

→ Check terminals V_{DD} and S of the interface board assembly (6-31).

○ When V_{DD} = below 4.5V and S = below 4.5V:

└→ Broken V_{DD} line is anticipated. Check V_{DD} of each PCB.

○ When V_{DD} = 4.5V or more and S = below 4.5V:

└→ Broken V_{DD} or S line beyond the interface board assembly (6-3) is anticipated.
Check the ribbon cable and lead wire of the connector assembly (1-2).

○ When V_{DD} = 4.5V or more and S = 4.5V or more, it is normal.

→ Check terminal SM3 of the connector (10-20) of the interface board assembly (6-3).

○ When SM3 = below 4.5V:

└→ The circuit across S and SM3 is defective.

└→ Check terminal SM3 of the CPU assembly (HG680).

○ When SM3 = below 4.5V:

└→ Broken line from the interface board assembly (6-3) and CPU assembly (6-30) or poor contact of the connector is anticipated.
Check the line.

○ When SM3 = 4.5V or more, it is normal. Proceed to CHECK 3 .

(3) **CHECK 3**

→ Is not the mirror UP-DOWN switch (SW5) set to UP ?

○ When a picture is taken with the mirror gone up, the stand-by monitor blinks and the shutter cannot be released unless the mirror comes down once.

└→ Set the mirror UP-DOWN switch (SW5) to DOWN.

→ Is the shutter speed selector dial (SW3) set to AE mode ?

○ The stand-by monitor blinks when no AE finder is used under AE mode.

└→ Set the main switch (SW1) to the manual mode.

(Checking by the use of an oscillator)

→ Check terminals G0 through G3 of the CPU assembly (HG680).

○ When voltages at terinals G0 through G3 are the reated voltages and they meet with the set shutter speeds, it is normal.
If not, check the shutter speed selector switch (SW3), the connector and the line up to the CPU assembly.

(4) **CHECK 4**

→ Check terminal SP of the CPU assembly (HG680).

○ When SP = below 1.5V, the release switch (SW4) is assumed to be turned on.
In this case, the stand-by monitor keeps blinking.

└→ Make sure that the release switch is not turned on (including the remote release).
Further, check the switch and transistor Q58 for defectiveness.

→ As the results of the above checking, when everything is normal, the CPU assembly (HG680) is defective.

2.3 The stand-by monitor lights but the camera does not operate when the shutter release button is depressed. (NG is not displayed also)

(1) CHECK 1

→ Is the special lens for GX680 mounted ?

○ When an L.F. board adapter is installed.

When the mirror UP-DOWN switch (SW5) is set to UP, the monitor lights but the shutter cannot be released.

(2) CHECK 2 When the camera can be operated by the release switch on the camera, but it cannot be operated by the remote release.)

→ Try again with another remote release. If it operates normally, that remote release is defective.

Refer to troubleshooting for remote release.

→ Check terminals SP2 (13-39) and SP (13-81) of the switch board.

○ When SP2 = below 4.5V with the remote release switch turned on:

└→ Check the harness of SP2 (13-39) for connection, V_{DD} of remote terminal and lead wire for break-down.

○ When SP2 = 4.5V or more and SP = 1.5V or more with the remote release switch turned on:

└→ Defective or broken circuit across SP2 and SP is anticipated.

(3) CHECK 3 When the camera cannot be operated by the release switch on the camera but it can be operated by the remote release)

→ Check terminal SP (13-81) of the switch board on the camera.

○ When SP = 1.5V with the release switch (SW4) on the camera turned on:

└→ Defective switch or broken line across the switch and terminal SP is anticipated.

(4) **CHECK 4** (When the camera cannot be operated either by the release switch on the camera or remote release)

→Check terminal SP (13-81) of the switch board on the camera.

- When SP = 1.5V or more with the release switch (SW4) turned on:
  - → The terminal SP line is abnormal. Check the line for breakdown or short-circuit.

→Check terminal $\overline{SP}$ of the CPU assembly (HG680).

- When SP = below 1.5V with the release switch (SW4) turned on but voltage at terminal $\overline{SP}$ of the CPU assembly is 1.5V or more:
  - → Broken line across the switch board and CPU assembly or poor contact of the connector is anticipated.
    Check the line and connector.

→As the results of the above checking, when everything is normal, the CPU assembly is anticipated to be defective.

2.4 The mirror does not operate when the mirror UP-DOWN switch (SW5 of the switch board) is set to UP or DONW. (NG is not displayed also)

(1) CHECK 1

→Check terminal SMU (13-81) of the switch board.

○ When SMU ≒ 5V with the mirror switch (SW5) set to DOWN and SMU ≒ 0V with the mirror switch (SW5) set to UP, it is normal.

└→ When abnormal, check the mirror switch (SW5) for defectiveness and R128 for open.

(2) CHECK 2

→Check terminal $\overline{\text{SMU}}$ of the CPU assembly (HG680).

○ When voltage is the same as that at terminal SMU (13-81) of the switch board, it is normal.

└→ When abnormal, check the signal line across the switch board and CPU assembly for open, connector for poor contact and IC (U7) for defectiveness.

└→As the results of the above checking, when everything is normal, the CPU assembly (HG680) is anticipated to be defective.

2.5 The stand-by monitor should blink but lights.

(1) **CHECK 1** (When the stand-by monitor should blink as the dark slide is inserted in the film holder, the monitor is displaying END or NG)

→When the stand-by monitor blinks as the film holder is dismounted.

Refer to troubleshooting for film holder.

→When the stand-by monitor lights even after the film holder is dismounted.

└→ Proceed to **CHECK 2**.

(2) **CHECK 2** (When film holder is not mounted)

→Check terminals ABLE of the connectors (12-20, 12-49, CN-7-1 and (4-9) on the mirror PCB assembly (5-100) and pin board assembly (4-6)

○ When voltage at terminal ABLE is zero volt, it is normal.

└→ When voltage at terminal ABLE is higher than 0.6V, check the ABLE line for short-circuit.

→Check terminals ABLE of the connectors (12-20, 12-49, 14-18 and 14-22) of the mirror PCB assembly (5-100) and connector board.

○ When voltage at terminal ABLE is 5V, it is normal.

└→ When voltage at terminal ABLE is higher than 3.5V, check transistor Q41 for defectiveness, R94 and U7 of the CPU assembly for defectiveness, and connector for poor contact.

→Check terminal $\overline{\text{ABLE}}$ of the CPU (HG680).

○ When voltage at terminal $\overline{\text{ABLE}}$ is 5V, it is normal.

└→ When voltage at terminal $\overline{\text{ABLE}}$ is lower than 3.5V, check U7 for defectiveness, and circuit pattern for short-circuit and open.

└→When voltage at terminal $\overline{\text{ABLE}}$ is 5V but the stand-by monitor still lights, the CPU (HG680) is defective.

(3) **CHECK 3** (When no lens is mounted)

→ Check terminal S (6-40) of the interface board assembly.

○ When S = 2.5V, it is normal.

└→ When S is higher than 3.5V or lower than 1.5V, check the line across the focusing adjust unit and terminal S of the interface board assembly (6-31) for short-circuit, and R79, R80 and R81 for defectiveness.

→ Check terminal ST (6-40) of the interface board assembly.

○ When ST = 5.0V, it is normal.

└→ When ST is lower than 4.5V, check the line across the focusing adjust unit and terminal ST of the interface board assembly (6-31) for short-circuit, and R69 and R70 for defectiveness.

→ Check terminals SM3 and SM4 of the connector (10-20) of the interface board assembly (6-31).

○ When SM3 = below 0.5V and SM4 = below 0.5V, it is normal.

└→ When it is abnormal, COMP3, Q35, R71 and U6 are anticipated to be defective. Check these components.

→ Check terminals SM3 and SM4 of the CPU assembly (HG680).

○ When SM3 = below 0.5V and SM4 = below 0.5, it is normal.

└→ When it is abnormal, open SM3 and SM4 lines across the interface board assembly (6-31) and CPU assembly (6-30) and poor contact of the connector are anticipated.

└→ When voltage at terminal SM3 and SM4 of the CPU assembly (HG680) is below 0.5V but the stand-by monitor still lights, the CPU assembly (HG680) (6-30) is defective.

(4) **CHECK 4** (When shutter speed is set to AE and no AE finder is used)

→ Check terminals G0 through G3 of the CPU assembly (GH680) (6-30).

○ When G0 ~ G3 = 4.5V or more, it is normal (AE mode).

└→ When it is abnormal, check the shutter speed selector switch (SW3), its connector and the line across the connector to the CPU (HG680).

→ Check terminal FOK of the connectors (13-66, 13-81 and 15-7) of the switch board and LED board.

○ When FOK = 0V, it is normal.

(When FOK = 1.5V or higher, AE finder must have been used.)

└→ When FOK = 1.5V or more, check the FOK line for short-circuit and R87 and R88 for defectiveness.

→ Check terminal FOK of the connectors (13-66, 13-81, 14-6 and 14-18) of the switch board and connector board.

○ When FOK = 5V, it is normal.

└→ When FOK = below 3.5V, check R86 and Q39 for defectiveness.

→ Check terminal $\overline{\text{FOK}}$ of the CPU (HG680).

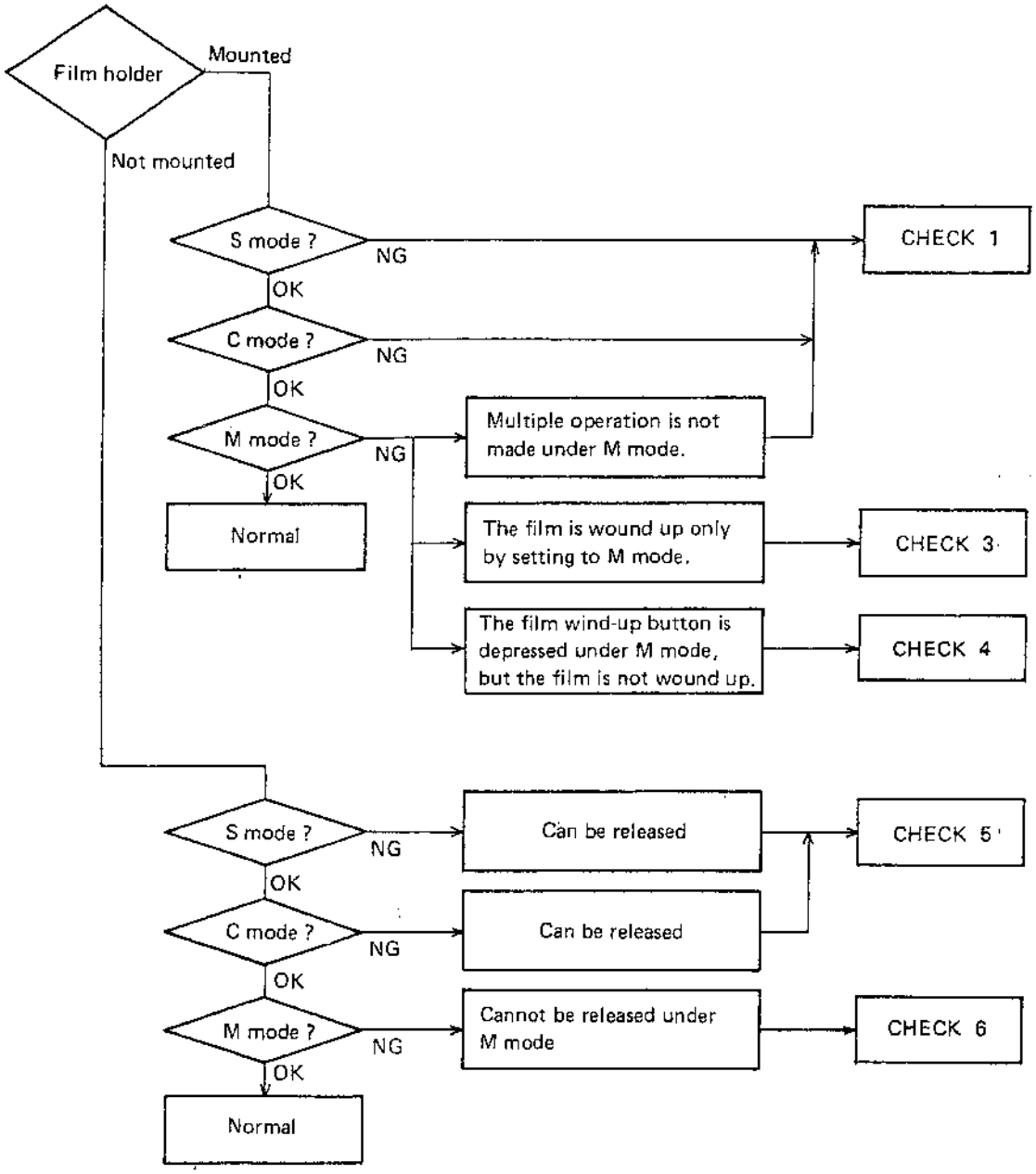
○ When $\overline{\text{FOK}}$ = 5V, it is normal.

└→ When $\overline{\text{FOK}}$ = below 3.5V, check the line between the switch board and CPU, contacts and U7.

→ When terminals G0 through G3 of the CPU (HG680) = 4.5V or more and $\overline{\text{FOK}}$ = 5V but the stand-by monitor still lights, the CPU (HG680) is defective.

2.6 Incorrect mode setting (main switch assembly (SW1) (However, NG is not displayed.)

Fig. 35



(1) CHECK 1

→ Is the stand-by monitor lighting ?

When the stand-by monitor is blinking, refer to 2.2 above.

→ Is the releasing operation made ?

If not, refer to 2.3 above.

→ The releasing operation is made but it is for other mode.

→ Proceed to CHECK 2.

(2) CHECK 2

→ Check terminals OFF, C, M, and SFE (13-51, 13-81) of the switch board.

The normal voltage are shown below.

	Terminal OFF	Terminal C	Terminal M	Terminal SFE
S mode	About 5V	About 5V	About 5V	About 5V
C mode	About 5V	0V	About 5V	About 5V
M mode	About 5V	About 5V	0V	About 5V
Wind-up switch ON	——	——	——	0V

→ When voltage is abnormal, poor contact of the main switch (SW1), wind-up switch (SW6) or harness, open lead wire, defective R98, R120, R121 or R122, or open circuit pattern is anticipated.

→ Check terminals MODE 1, MODE 2 and MODE 3 of the CPU (HG680).

○ Refer to the CPU terminal description, and check voltage under each mode.

→ When voltage is abnormal, open or poor contact of connectors across the CPU (HG680) MODE terminals and terminal OFF, C, M or SFE (13-51, 13-81) of the switch board, or defective ICs U1 and U2 is anticipated.

→ When voltage is normal, proceed to CHECK 7.

(3) CHECK 3

*This trouble occurs when the wind-up switch (SW6) has been turned on from the beginning.

→ Check if the wind-up switch has been pressed mechanically or not.

└→ When pressed down, repair.

└→ When the switch is mechanically normal, proceed to CHECK 2.

(4) CHECK 4

→ See if the exposure monitor lights (either one of +, EXP and −) under mode M (SW1)

○ When the exposure monitor does not operate under mode M, the film cannot be wound up under mode M.

└→ Refer to CHECK 7, 2.7-(7) below.

└→ When the exposure monitor is normal, proceed to CHECK 2.

(5) CHECK 5

→ When the stand-by monitor is blinking:

○ It may be assumed that the CPU (HG680) has judged it to be mode M.

└→ Proceed to CHECK 2.

└→ When the stand-by monitor is lighting:

○ It may be assumed that the CPU (HG680) has judged ABLE signal of the film holder to be OK.

└→ Refer to CHECK 2, 2.5-(2) above.

(6) CHECK 6

→ Check terminal ISO (11-31) of the light measuring board assembly (6-33).

○ It is normal when ISO = below 0.5V.

└→ When ISO = 0.5V or higher, check ISO lines among the pin board assembly (4-6), mirror PCB assembly (5-100), connector board, interface board assembly (6-31) and light measuring board assembly (6-33) and R132, R133 and C16.

→ Check terminal ISO-2 (11-31) of the light measuring board assembly (6-33).

○ It is normal when ISO-2 = below 0.5V.

└→ When ISO-2 = 0.5V or higher, check ISO-2 lines amont the light measuring board assembly (6-33), interface board assembly (6-31), connector board and CPU assembly (6-30) and A1 and R132.

→ Check contact point (V_{R123}) of the COMP 1 and R123 of the CPU assembly (6-30).

○ It is normal when V_{R123} = below 1.5V.

└→ When V_{R123} = 1.5V or higher, check R124, R125 and ISO-2 lines.
(It is normal when voltage at cross-point between R124 and R125 is 0.6V and ISO-2 line is in the same potential as that of ISO-2 line of the light measuring board assembly (6-33).)

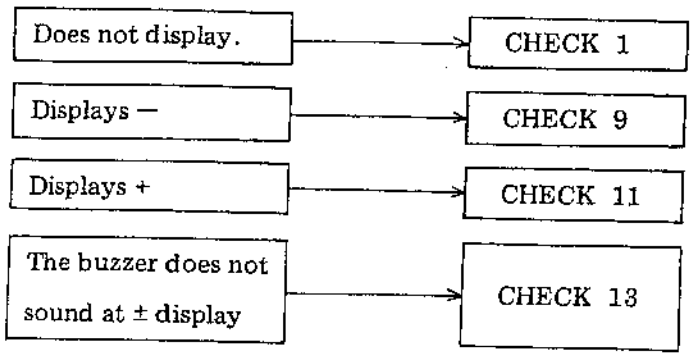
└→ As the results of the above checking, when everything is normal, proceed to CHECK 2 .

(7) CHECK 7

→ When the trouble is "The film holder does not operate" after completing CHECK 2 , refer to Troubleshooting for Film Holder .

└→ When the trouble is other than "The film holder does not operate" after completing CHECK 2 , the CPU (GH680) assembly (6-30) of the camera is defective.

2.7 Faulty exposure monitor



(1) CHECK 1

→ Is not shutter speed set to "Bulb" (SW3)

○ When shutter speed is set to "Bulb", the exposure monitor should not make any display.

→ Make sure that the exposure monitor displays at other shutter speed.

→ Make sure that the shutter does not operate as bulb when the shutter is set to other than bulb. If the shutter operates as bulb with shutter set to other than bulb, check terminals G0 through G3 of the CPU (HG680) assembly.

→ Is the film holder mounted ?

○ When no film holder is mounted and the camera is in Multiple mode (SW3) (for example, an instant film pack), the exposure monitor should not display.

→ When the camera is under mode M (Multiple), check the exposure monitor under mode S or C (SW3).

→ When the exposure monitor displays under mode S or C and it does not display under mode M, and the ISO system is defective.
Proceed to CHECK 7, 2.7-(7) below.

→ When the exposure monitor does not display under mode S, C or M, proceed to CHECK 2 below.

(2) CHECK 2 (Be sure to measure voltage within 5 seconds after releasing the shutter.)

→ Measure voltage at terminals Q1, Q2 and Q3 (10-34) of the interface board assembly (6-31).

- ○ When voltage at either one of Q1 through Q3 is 1.5V or higher:
  → Proceed to CHECK 3.
- ○ When voltages at all terminals Q1 through Q3 are below 1.5V:
  → Proceed to CHECK 4.

(3) CHECK 3 (Be sure to measure voltage within 5 seconds after releasing the shutter.)

→ Measure voltage at terminals Q1 through Q3 (13-81) of the switch board.

- ○ It is normal when voltage at either one of terminals Q1 through Q3 is 1.5V or higher as well as that at either one of terminals Q1 through Q3 (10-34) of the interface board assembly (6-31).
  → When abnormal, check lines among the interface board, connector board and switch board, and check connectors for poor contact.

→ Check voltage at terminals LED1, LED2 and LED3 (13-66) of the switch board.

- ○ It is normal when voltage at either one of terminals LED1, LED2 and LED3 is below 1.5V and voltages at the remaining terminals are 4.5V or higher.
  → When abnoraml, check Q43, Q44, Q45, R100, R101 and R102.

→ Check voltage at terminals V_{DD}, LED1, LED2, and LED3 (15-7) of the LED board.

- ○ It is normal when V_{DD} = 5V and voltage at either one of terminals LED1 through LED3 is below 1.5V as well as the switch board.
  → When abnormal, check the connector for contact.

→ As the results of the above checking, when everything is normal, the LED1, LED2 or LED3 is defective.

(4) CHECK 4 (Be sure to measure voltage within 5 seconds after releasing the shutter.)

→ Measure voltages at terminals Q1 through Q3 at IC (U9) pins of the interface board.

- ○ When voltages at terminals Q1 through Q3 are all below 1.5V:
  → Proceed to CHECK 5.
- ○ When voltage at either one of terminals Q1 through Q3 is 1.5V or higher:
  → Open line from IC (U9) pin of the interface board assembly (6-31) to the connector.

(5) CHECK 5 (Be sure to measure voltage within 5 seconds after releasing the shutter.)

→ Measure voltage at terminals D1, D2 and D3 of the IC (U9) pin of the interface board.

- ○ When voltages at terminals D1 through D3 are all below 3.5V.
  → COMP3, R138, R139, R140, R141, R142 or U3 is anticipated to be defective. Replace the interface board assembly (6-31) with a new one.
- ○ When voltage at either one of terminals D1 through D3 is 3.5V or more:
  → Proceed to CHECK 6.

(6) CHECK 6

→ Refer to "Exposure monitor circuit description", and check waveform of EST and 4174C (10-20, 10-10) signals.

- ○ When waveform is normal:
  → U9 is anticipated to be defective.
- ○ When waveform is abnormal:
  → Faulty connection between the interface board and CPU assembly or defective CPU assembly or U5 is anticipated.

(7) CHECK 7

→ Measure voltage at terminal ISO (11-31) of the light measuring board.

○ It is normal when ISO voltage is delivered as set.

└→ When abnormal, proceed to CHECK 8.

→ Measure voltage at terminal ISO-2 (11-31) of the light measuring board.

○ It is normal when ISO-2 = ISO voltage.

└→ When abnormal, check A1 and R132, and ISO-2 lines among the light measuring board, interface board, connector board and CPU assembly.

→ Measure voltage at connection point (V_{R123}) between COMP1 and R123 of the CPU assembly.

○ It is normal, when V_{R123} = 3.5V or higher.

└→ When abnormal, R124, R125 and COMP 1 are defective. (Voltage at the cross point between R124 and R125 is about 0.6V.)

└→ When everything is normal, refer to 2.6-(2) above.

(8) CHECK 8

→ Disconnect the connectors of the light measuring board and interface board, and check terminal ISO (10-20, 10-10) of the interface board.

○ It is normal when ISO voltage is delivered as set.

└→ When the condition recovers to be normal, R132, R133 and C16 are defective.

└→ Check terminal ISO (12-20) of the mirror PCB.

→ When it is normal, open ISO line among the interface board, connector board and mirror PCB or poor contact of the connector is anticipated.

→ When it is abnormal, poor contact between the film holder and camera or incorrect ISO voltage of the film holder is anticipated.

(9) CHECK 9

- Is ISO (film speed) set correctly on the film holder ?
  - → Reset it correctly when it is not set correctly.
- Is exposure set correctly ?
  - → Recheck exposure setting.
- Is it an excessively low key picture ?
  - → If so, it cannot be helped.
- Is a film loaded ?
  - → The exposure monitor will display - when no film is loaded.
- When everything is normal, proceed to CHECK 10 .

(10) CHECK 10

- Check it under mode M.
  - → When the exposure monitor does not display under mode M, proceed to CHECK 7 .
- Check it by the use of an exposure adjusting jig.
  - → When −2, −1, 0, +1, +2, the level is normal. R138, R139, R140, R141, R142, COMP 3 or U3 is anticipated to be defective.
  - → When −3, −4, readjust the level, and recheck it.
  - → When −5, the light measuring circuit is defective. Refer to "Exposure checking monitor circuit description, and check, or replace the light measuring board. When it is still abnormal even after replacing the light measuring board, proceed to CHECK 7 .

(11) **CHECK 11**

→ Is ISO (film speed) set correctly ?
  → Reset it correctly when it is not set correctly.

→ Is exposure set correctly ?
  → Recheck exposure setting.

→ Is it an excessively high key picture ?
  → If so, it cannot be helped.

→ When everything is normal, proceed to CHECK 12 .

(12) **CHECK 12**

→ Check it by the use of an exposure adjusting jig.

→ When −2, −1, 0, +1, +2, the level is normal.
R138, R139, R140, R141, R142, COMP 3 or U3 is anticipated to be defective.

→ When +3, +4, readjust the level, and recheck it.

→ When +5, the light measuring circuit is defective.
Refer to "Exposure checking monitor circuit description", and check, or replace the light measuring board. When it is still abnormal even after replacing the light measuring board, proceed to CHECK 7 .

(13) **CHECK 13**

→Is a remote release used ?

○ The buzzer does not sound when remote release is not used.

→Check voltage at terminal Q4 (13-81) of the switch board.

(Be sure to measure this voltage within 5 seconds after releasing the shutter.)

○ It is normal when Q4 = 4.5V or higher at + — display.

→ When Q4 = below 4.5V, proceed to CHECK 14.

→ When Q4 = 4.5V or higher, Q46 or R162 is defective, contact of the connector for the remote control is poor, or harness is open.
When everything is normal, the remote release is defective.

(14) **CHECK 14** (Be sure to measure within 5 seconds after releasing the shutter.)

→Measure voltage at terminal Q4 (10-34) of the interface board.

○ It is normal when Q4 = 4.5V or higher at + — display.

→ When Q4 = 4.5V or higher, open Q4 lines among the interface board, connector board and switch board, or poor contact of the connector is anticipated.

→ When Q4 = below 4.5V, U9 or U3 is defective.
Replace the interface board assembly with a new one.

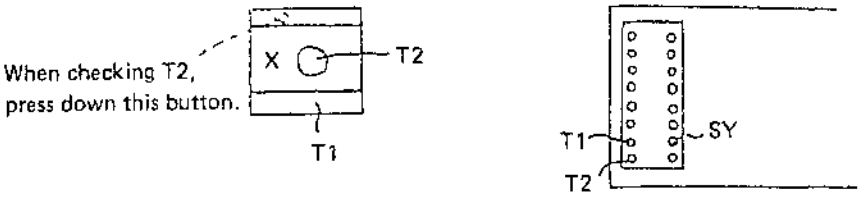
2.8 The flash does not fire correctly.

- The flash fires when X-terminal is used, but it does not when accessory shoe is used. → CHECK 1
- The flash fires when accessory shoe is used, but it does not when X-terminal is used. → CHECK 2
- The flash does not fire with X-terminal or accessory shoe used.
  - The flash fires when the test button is pressed, but it does not when the shutter is released. → CHECK 3
  - The flash fires when the shutter is released, but it does not when the test button is pressed. → CHECK 4
  - The flash does not fire when the shutter is released or test button is pressed. → CHECK 5
- The flash fires but the timing is deviated. → CHECK 6

(1) CHECK 1

→ Broken or disconnected (unsoldered) two lead wires (which connect the accessory shoe to the connector board within the focusing adjust unit) are anticipated.

Check continuity across the accessory shoe and T1 or T2 of the connector board.



→ When continuity exists, poor contact of the ribbon cable and board connector is anticipated.

(2) **CHECK 2**

→ Broken or disconnected (unsoldered) harness from terminals T1, T2 (13-24) of the switch board, or poor contact of the connector is anticipated.

(3) **CHECK 3** (When abnormal even after cleaning the contacts)

→ Test the lens with a shutter tester.

→ When the synchro-timing or contact efficiency is abnormal, the lens (shutter) is defective.

→ When the lens is normal, check continuity across the pin for the shutter and terminal SY (CN-9-2) of the connector board.

→ When everything is normal, poor contact of the ribbon cable and connector board is anticipated.

(4) **CHECK 4**

→ Defective operation of the synchro test button (6-21),

→ Poor contact of the switch (SW7) located under the synchro test button,

→ Or, defective diode (D8) of the switch board.

(5) **CHECK 5**

→ Test the flash by using other flash.

→ When the flash fires normally, the original flash is defective or the flash is not suited to Fuji GX680 camera.

Refer to "Flash X-contact".

→ When the flash is normal, the Triac circuit is defective. Refer to the "Flash X-contact" and check, or replace the switch board with a new one.

(6) CHECK 6

→ Check the lens with a shutter tester.

↳ When synchro-timing is abnormal, the lens (shutter) is defective.

→ Defective Triac circuit of the switch board is also anticipated to be defective.

↳ Replace the switch board and check it.

NOTE:

It is very rare to see this trouble.

→ Check the flash for effectiveness.

3. Troubles that causes an NG display

3.1 On the sequence, NG is displayed when:

(1) UP END signal is not sent when 3 seconds are elapsed after the mirror goes up

(2) DOWN END signal is not sent when 3 seconds are elapsed after the mirror goes down.

(3) RELEASE END signal is not sent when 3 seconds are elapsed after the shutter is released.

(4) CHARGE END signal is not sent when 3 seconds are elapsed after the shutter is charged.

(5) The timing switch has not turned on immediately before the shutter keep magnet turns off.

(6) RECEIVE signal (ABLE pulse) is not sent within 1.5 seconds after outputing WIND-UP signal (FEED) from the camera.

(7) ST does not turn off when 3 seconds are elapsed after turning off the shutter keep magnet.

3.2 NG is displayed when the mode switch is set to ON.

(1) CHECK 1

→ Is a lens mounted ?

→ Proceed to CHECK 2 when no lens is mounted.

→ Proceed to CHECK 3 when a lens is mounted.

(2) CHECK 2

→ What is the mirror switch (SW5) status ?

→ When the mirror switch is set down, MIRROR DOWN END signal has not been input.

Refer to 4-4.2 below.

→ When the mirror switch is set up, MIRROR UP END signal has not been input.

Refer to 4-4.1 below.

(3) CHECK 3

→ What is the mirror switch (SW5) status ?

→ When the mirror switch is set down, MIRROR DOWN END SIGNAL or SHUTTER CHARGE END signal has not been input. Dismount the lens and check.

→ When display is still NG even after dismounting the lens:

Refer to 4-4.2 below.

→ When display is normal after dismounting the lens, SHUTTER CHARGE END signal has not been input.

Refer to 4-4.4 below.

→ When the mirror switch is set up, set the mirror switch (SW5) down and check.

→ When display is still NG even after setting the mirror switch down, return to CHECK 3 .

→ When display is normal after setting the mirror switch down, set it up again , dismount the lens, and recheck.

→ When display is still NG even after dismounting the lens:

Refer to 4-4.1 below.

→ When display is normal after dismounting the lens, SHUTTER RELEASE END signal has not been input.

Refer to 4-4.3 below.

3.3 When the mirror switch is set up, display has become NG

CHECK 1

→ Is a lens mounted ?

→ When no lens is mounted:

Refer to 4-4.1 below.

→ When a lens is mounted, dismount it and check.

→ When display is still NG even after dismounting the lens:

Refer to 4-4.1 below.

→ When display is normal after dismounting the lens:

Refer to 4-4.3 below.

3.4 When the mirror switch (SW5) is set down, display has become NG

* Turn off the mode switch (SW1) once, and then, turn it on again.

The display should be NG. Refer to 3.2 above.

3.5 When wind-up button (SW6) is pressed at mode M, display has become NG.

* Refer to 4-4.6 below.

3.6 When the shutter is released, display has become NG.

(1) **CHECK 1**

→ Check under mode M.

→ When the condition is normal under mode M, the cause of trouble is "wind-up signal".

Refer to 4-4.6 below.

→ When the condition is still abnormal even under mode M, proceed to CHECK 2 .

(2) **CHECK 2**

→ Set shutter speed to "Bulb" (SW3), and check.

→ When the display becomes NG while the shutter release button (SW4) is pressed:

Proceed to CHECK 3 .

→ When the display does not become NG while the shutter release button (SW4) is pressed, but it becomes NG when the shutter release button is released from the depression:

Proceed to CHECK 6 .

(3) **CHECK 3**

→ Does the display become NG immediately after releasing the shutter ?

→ The display becomes NG immediately when the timing switch (ST) does not turn on immediately before the KEEP magnet turns off.

Refer to 4-4.5 below.

→ When the display becomes NG 3 seconds after releasing the shutter:

Proceed to CHECK 4 .

(4) **CHECK 4**

→ Set the mirror switch (SW5) up, and check.

- → The display still becomes NG, refer to 3-3.3 above.
- → When the display is normal with the mirror switch set to UP, the shutter system has a problem. Proceed to **CHECK 5**.

(5) **CHECK 5** (Use an oscilloscope.)

→ Checking terminal MGK (at any position), release the shutter.

- → When the display becomes NG with MGK = 2.5V or higher (voltage drops to zero as soon as the display becomes NG):
  Refer to 4-4.3 below.
- → When the display becomes NG with MGK = 0V, the reason is because the timing switch does not turn off.
  Refer to 4-4.7 below.

(6) **CHECK 6**

→ Set the mirror switch (SW5) up and down, and check.

- → When the display still becomes NG, refer to 3-3.3 above.
- → When the display does not become NG, refer to 4-4.4 below.

4. Method to diagnose each NG

4.1 Mirror UP, NG

This trouble occurs when MIRROR UP END signal does not arrive.

(1) CHECK 1

→ Visually observe the mirror operations.

- → When the mirror does not operate at all, proceed to CHECK 2 .
- → When the mirror operates in a half way and stops, proceed to CHECK 3 .
- → When the mirror operates fully to the end, proceed to CHECK 4.

(2) CHECK 2

→ Check terminals MA and MB (12-25) of the mirror PCB assembly (before the display becomes NG).

- → When MA = Vcc, MB = 0V, it is electrically normal.
  - → The motor is defective, or mechanical trouble.
- → When MA = 0V, MB = 0V, it is electrically defective.
  - → The mirror servo circuit or relay is defective.

  Referring to the "Mirror operating circuit description", check each part, check connector of each board for poor contact, or replace the mirror PCB assembly with a new one.

(3) CHECK 3

→ Check terminals MA and MB (12-25) of the mirror PCB assembly (after the mirror stops and before the display becomes NG)

- → When MA = Vcc, MB = 0V, before only the mirror goes up, it is electrically normal.
  - → The motor is defective, or mechanical trouble.
- → When MA ≒ 2.5V, MB = 0V, with only the mirror gone up and light shielding plate not risen, it is electrically normal.
  - → The motor is defective, or mechanical trouble.
- → When MA = 0V, MB = 0V, it is electrically defective.
  - → The mirror servo circuit is anticipated to be defective.

  Refer to CHECK 2 .

(4) CHECK 4

→ The mirror position detecting photocoupler system is in trouble.

→ Referring to the "mirror operating circuit description", check terminals MM1 and MM2 (12-49), check connector of each board for poor contact, check reflector of the mirror, or replace the mirror PCB assembly.

NOTE:

When checking the mirror position detecting photocoupler system, by careful not to allow the outside light directly hitting the photocoupler.

4.2 Mirror DOWN, NG

This trouble occurs when MIRROR DOWN END signal does not arrive.

(1) CHECK 1

→ Visually observe the mirror operations.

→ When the mirror does not operate at all, or it moves in a half way but stops, proceed to CHECK 2.

→ When the mirror moves fully to the end, the mirror position detecting photocoupler system is in a trouble.

Refer to 4-4.1 -(4) above.

(2) CHECK 2

→ Check terminals MA and MB (12-25) of the mirror PCB assembly (before the display becomes NG).

→ When MA = 0V, MB = 2 to 3V, it is electrically normal.

→ The motor is defective, or mechanical trouble.

→ When MA = 0V, MB = 8V, the motor is defective (open).

→ When MA = 0V, MB = 0V, it is electrically defective.

→ Relay, R33, Q24 or R35 is defective, MMB line is open, or contact of the connector is poor.

4.3 Shutter Release, NG

This trouble occurs when SHUTTER RELEASE END signal does not arrive.

(1) **CHECK 1**

→ Test the lens with a shutter tester.

→ As the result of the test, when it is still NG, the lens (shutter) is defective.

→ As the result of the test, when it is normal, the camera has a problem.

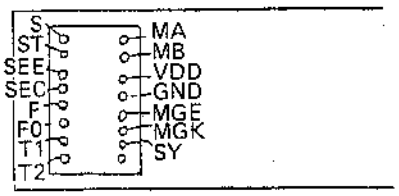
Proceed to CHECK 2 .

(2) **CHECK 2**

→ Is the contact pin in between the lens and camera normal ?

→ When the contact pin is not clean, clean it thoroughly.

→ Check continuity across the connectors of the connector board and lens contacts of the focusing adjust unit.



→ When no continuity exists, the wire is broken.

→ As the result of the above checking, the lens (shutter) is normal and no wire is broken, contact of the ribbon cable connector is poor or broken, connector of the interface board is in a poor contact or broken, or a circuit in the interface board is defective. Replace the interface board assembly

→ As the result of the above checking, when everything is normal, the CPU (HG680) is assumed to be defective.

4.4 Shutter Charge, NG

This trouble occurs when SHUTTER CHARGE END signal does not arrive.

Refer to 4.3 above.

4.5 S_T ON, NG

This trouble occurs when the timing switch does not turn on immediately before the KEEP magnet of the shutter does not turn off.

Refer to 4.3 above.

4.6 Wind-up, NG

This trouble occurs when ABLE signal does not arrive after outputing FEED signal.

(1) CHECK 1

→ Check terminals FEED of connectors (12-20, 12-49 and CN-7-1) of the mirror PCB assembly and pin board assembly (4-6)

→ When FEED = 5V continues for several miliseconds, proceed to CHECK 2 .

→ When FEED continues to be 0V, proceed to CHECK 3 .

(2) CHECK 2

→ Check continuities of contact points (4-11) and (4-12) between the mirror PCB assembly and film holder.

→ When no continuity exists, the harness is broken or in a poor contact, or the spring and contact within the pin board assembly (4-6) are in a poor contact.

→ Are the contact pins (4-11) and (4-12) with the film holder clean ?

→ Clean them thoroughly as required.

→ The film holder is anticipated to be defective.

→ Refer to "Troubleshooting for Film Holder".

(3) CHECK 3

→ Check terminals FEED of connectors (12-49) and (14-22) of the mirror PCB assembly and connector board with an oscilloscope.

- → When FEED = 5V, Q41, Q40, R93 or R119 is defective.
- → When FEED = 0V, open or shorted FEED lines among the CPU assembly, connector board and mirror PCB assembly are anticipated. Check them.
- → As the result of the above checking, when everything is normal, the CPU assembly (HG680) is anticipated to be defective.

4.7 S_T OFF, NG

This trouble occurs when the S_T does not turn off after KEEP magnet turns off.

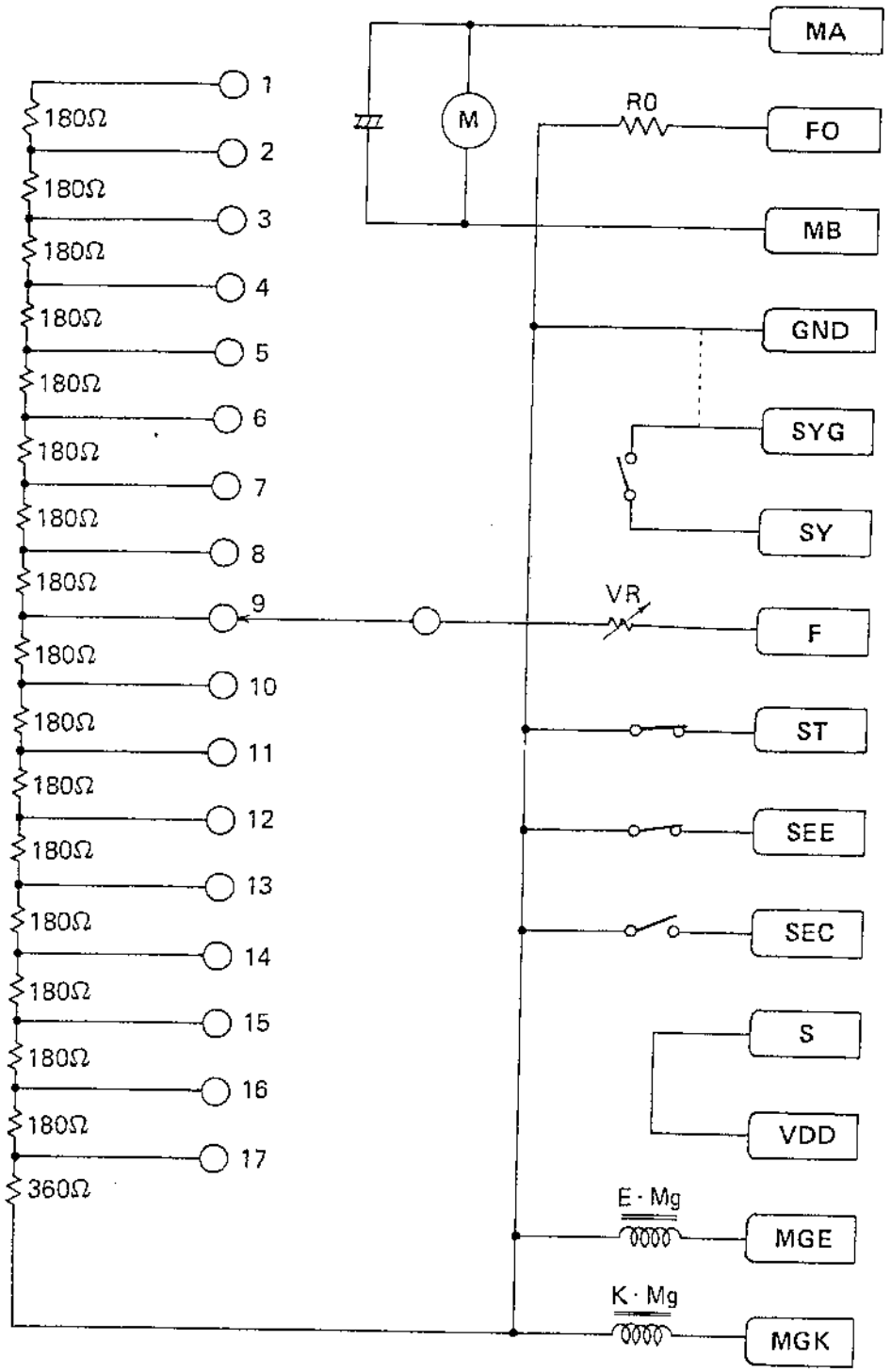
Refer to 4.3 above.

III. LENS SHUTTER, REMOTE RELEASE, AND DC POWER SUPPLY

1. Lens shutter

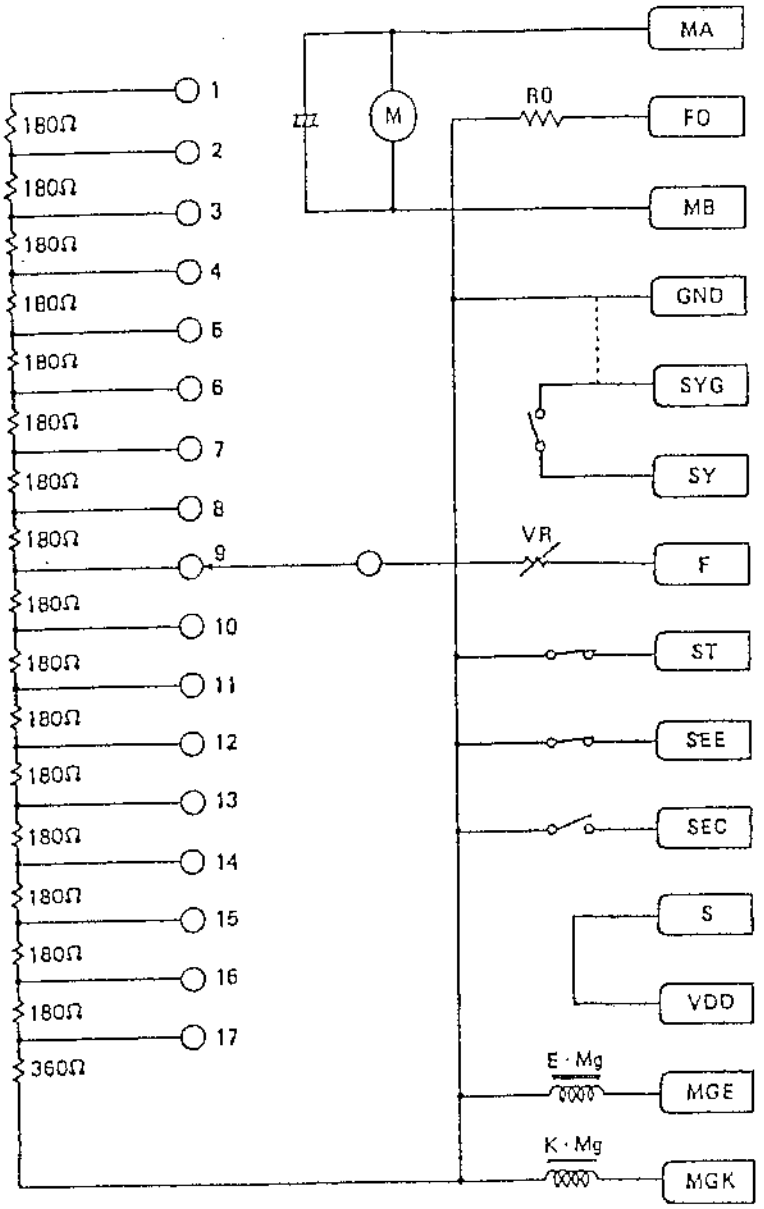
1.1 Circuit diagram for lens shutter

Fig. 36



1.2 F-value data and F0-value data for lens shutter

Fig. 37



F-value data

1	3.49 kΩ	10	1.87 kΩ
2	3.31	11	1.69
3	3.13	12	1.51
4	2.95	13	1.33
5	2.77	14	1.15
6	2.59	15	0.97
7	2.41	16	0.79
8	2.23	17	0.61
9	2.05		

Standard: ±50Ω at 20°C

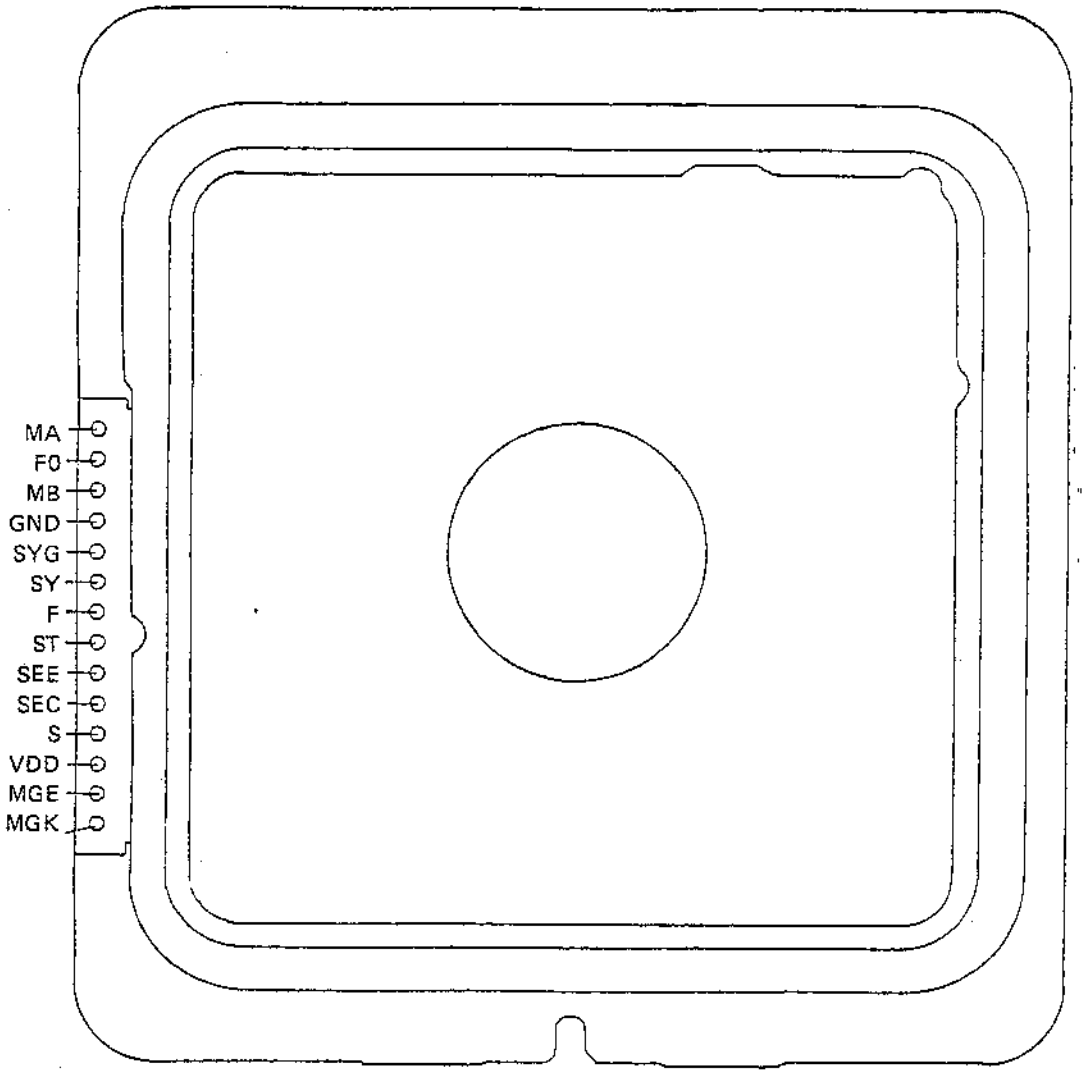
F0-value data (R0)

80mm/5.6	13.3 kΩ	180/5.6	13.3 kΩ
100/4.0	4.3 kΩ	210/5.6	13.3 kΩ
125/5.6	13.3 kΩ	250/5.6	13.3 kΩ
135/5.6	13.3 kΩ	300/6.3	16.0 kΩ
150/4.5	7.32 kΩ		

Standard: ±5% (±2% as a resistance)

1.3 Lens shutter terminal symbols

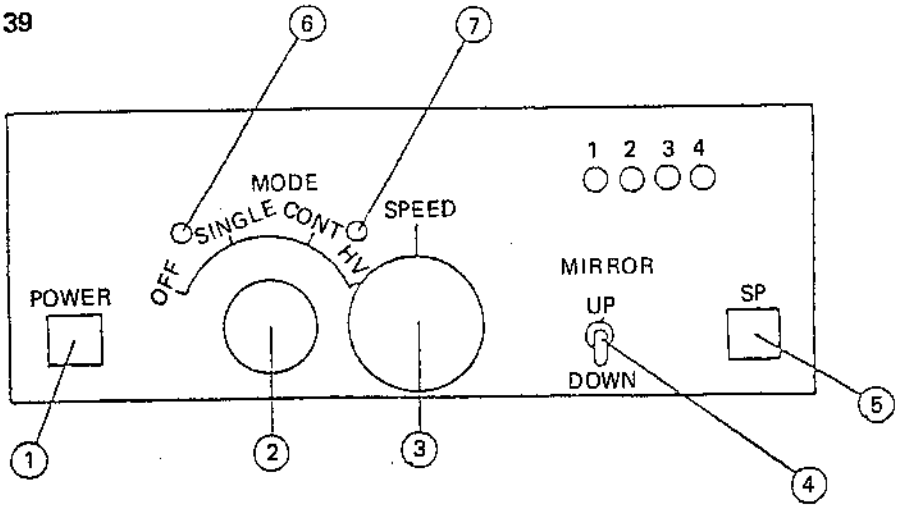
Fig. 38



1.4 Specifications for lens shutter jig

(1) Controls on the front panel

Fig. 39



① Power switch

② Mode switch ..... The left end is OFF position, and it turns to the right in order of OFF - S - C - M

③ Shutter speed switch .... The top is AUTO position, and it turns to the right in order of AUTO - 1/400 - 1/250 - 1/125 ..... 1, 2, 4, 8, Bulb.

④ Mirror UP switch ..... DOWN: Normal

UP: Mirror up (Shutter: Close)

⑤ Release switch

⑥ "OK" monitor ..... When lighting: OK (The shutter can be released)

When blinking: NG (The shutter cannot be released)

NOTE: NG is resulted when:

- ○ No shutter is mounted.
- ○ The shutter speed is set to AUTO.
- ○ The shutter has been released once with the mirror gone up. (OK is resulted when the mirror is set down.)

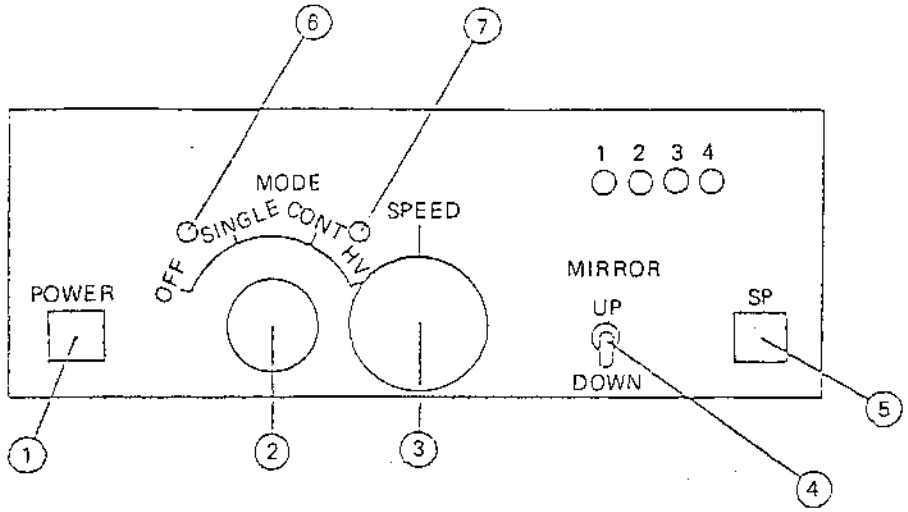
⑦ Abnormal monitor ..... When abnormal, ⑥ and ⑦ blink alternately.

NOTE:

Abnormal is resulted when SEC, SEE or other signal does not arrive 3 seconds after the motor starts.

(2) LED display on the front panel

Fig. 40



LED 1 . . . . Turns on when S_T has turned off immediately before KEEP magnet turns off.

LED 2 . . . . . Turns on when S_T does not turn off within 18 msec after KEEP magnet turns off.

LED 3 . . . . . Turns on when the sector does not starts opening within 2 to 10 msec. after S_T turns off.

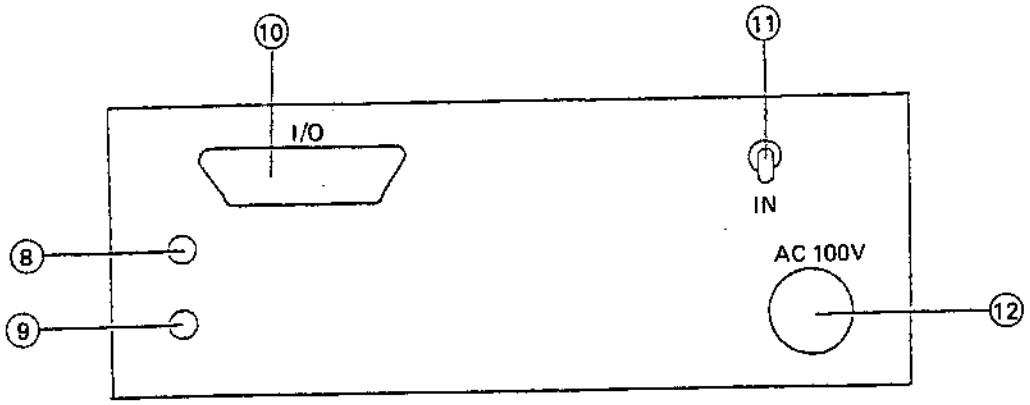
LED 4 . . . . . Turns on when the sector does not close within 10 msec. after E magnet turns off.

NOTE:

LED 3 and 4 do not operate normally when no input is made to WAVE IN.

(3) Back panel

Fig. 41



⑧ Waveform input (+)
⑨ Waveform input (—)

} Connected to WAVE OUT of a shutter tester (The maximum input should be less than Vcc of the jig circuit.)

⑩ Lead wire outlet

⑪ Motor power select switch .... Down: IN (Vcc of the jig circuit is used)

⑫ AC cord outlet

(4) Operations

	Mode	Operations
Normal	S	One sequence per shutter releasing. Even if it is pressed continuously, the shutter operates only once.
	C	As long as the shutter release button is pressed down, the shutter is released continuously.
	M	One sequence per shutter releasing. However, when the shutter release button is released from the depression, the sector is charged.
Mirror UP	S	One exposure per shutter releasing. Thereafter, the operation cannot be continued unless the mirror up switch is set to DOWN once.
	C	
	M	

PARTS LIST

FOR

FUJI GX680

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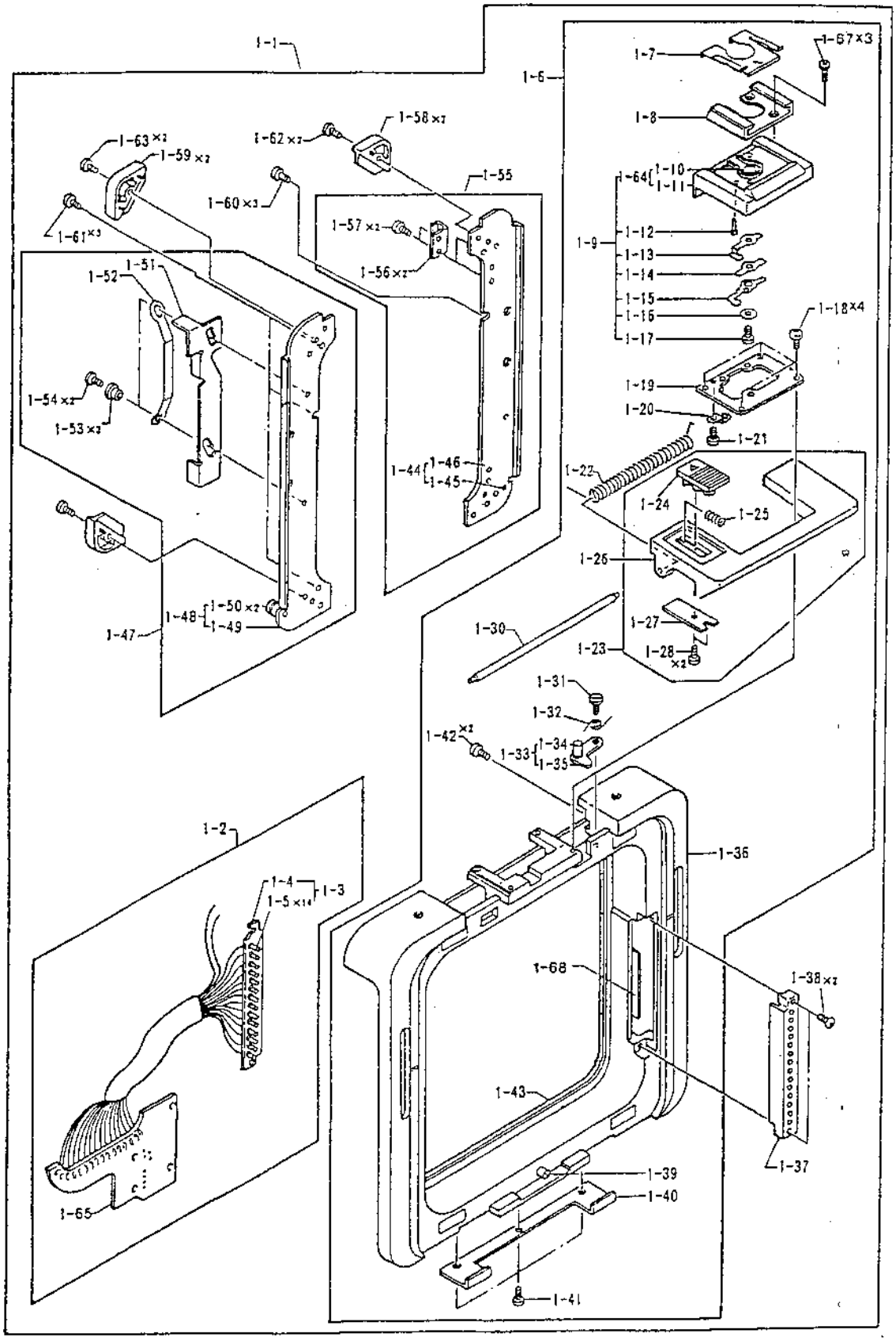
FUJI PHOTO FILM CO., LTD.

26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

1. FUJI GX680

Fig. 1

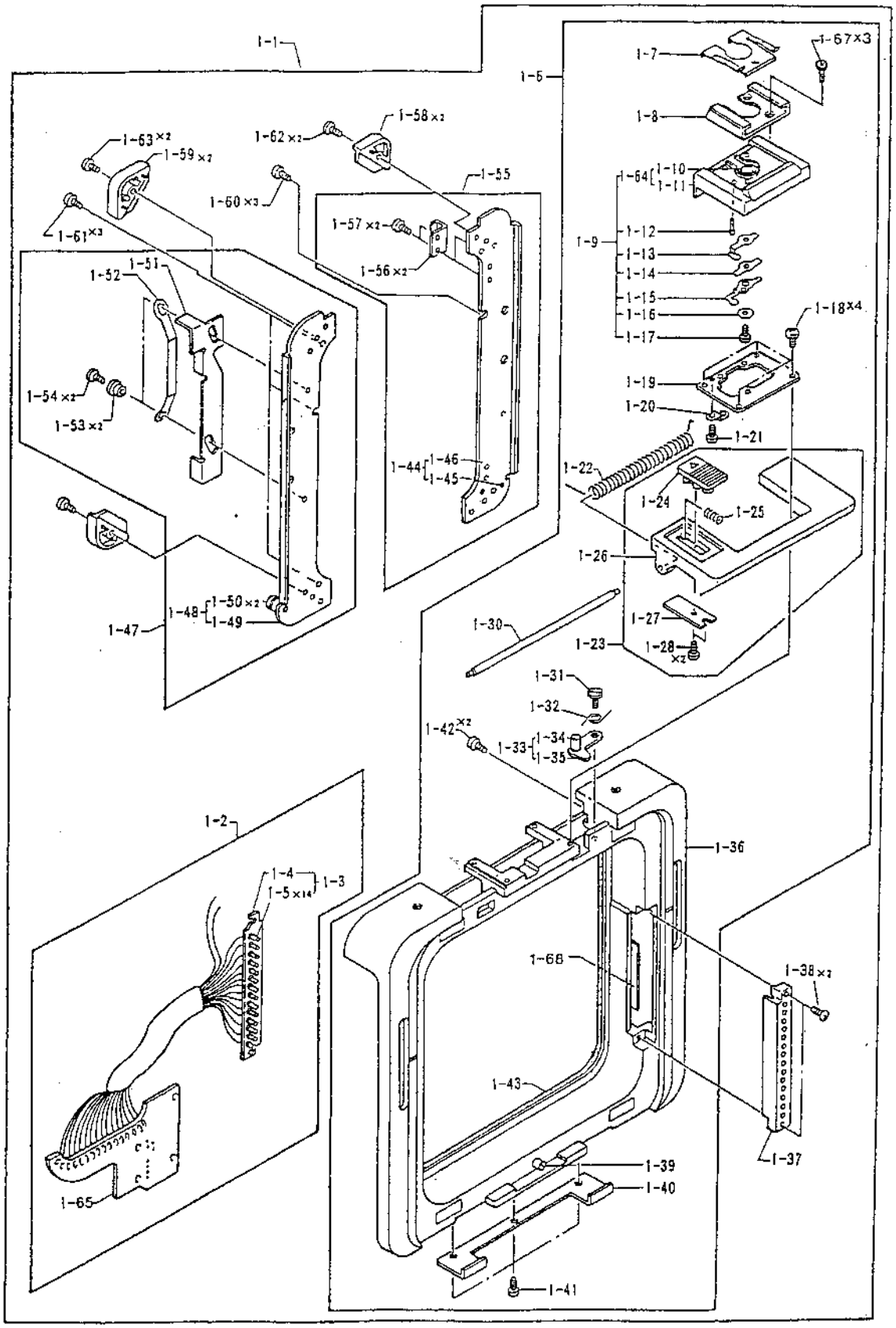


1. FUJI GX680

Ref No.	Part No.	Part Name		Q'ty	Remarks
1- 1	28A 4571901	Frame assembly	1-2, 1-6, 1-37, 1-38, 1-47, 1-55, 1-58, 1-59, 1-60, 1-61, 1-62, 1-63, 1-67, 1-68	1	
1- 2	110A 4574721	Connector assembly	1-3, 1-64	1	
1- 3					
1- 6	28A 4571990	Frame assembly	1-7~1-36, 1-39~1-42	1	
1- 7	11B 149247	Shoe cover		1	
1- 8	41B 2252410	Accessory shoe		1	
1- 9	115A 4571960	Contact seat assembly	1-12, 1-13, 1-14, 1-15, 1-16, 1-17, 1-64	1	
1-12	17B 3288370	Pin		1	
1-13	12B 2050650	Contact		1	
1-14	115B 2050700	Insulator		1	
1-15	112B 2050661	Contact		1	
1-16	55B 2050671	Washer		1	
1-17	53B 93480	Screw		1	
1-18	110M 170301M	Screw		4	
1-19	46B 4572010	Base plate		1	
1-20	109B 35871	Contact		1	
1-21	110M 140141N	Screw		1	
1-22	50B 4572060	Spring		1	
1-23	47A 4571930	Lens holder assembly	1-24, 1-29	1	
1-24	16B 4572290	Button		1	
1-25	50K 588520	Spring		1	
1-26	47B 4572040	Lens holder		1	
1-27	85B 4572300	Locking claw		1	
1-28	113M 170401M	Screw		2	
1-30	32B 4572050	Shaft		1	
1-31	32B 4572090	Screw		1	
1-32	50B 4572110	Spring		1	
1-33	47A 4571981	Lever assembly	1-34, 1-35	1	

1. FUJI GX680

Fig. 1

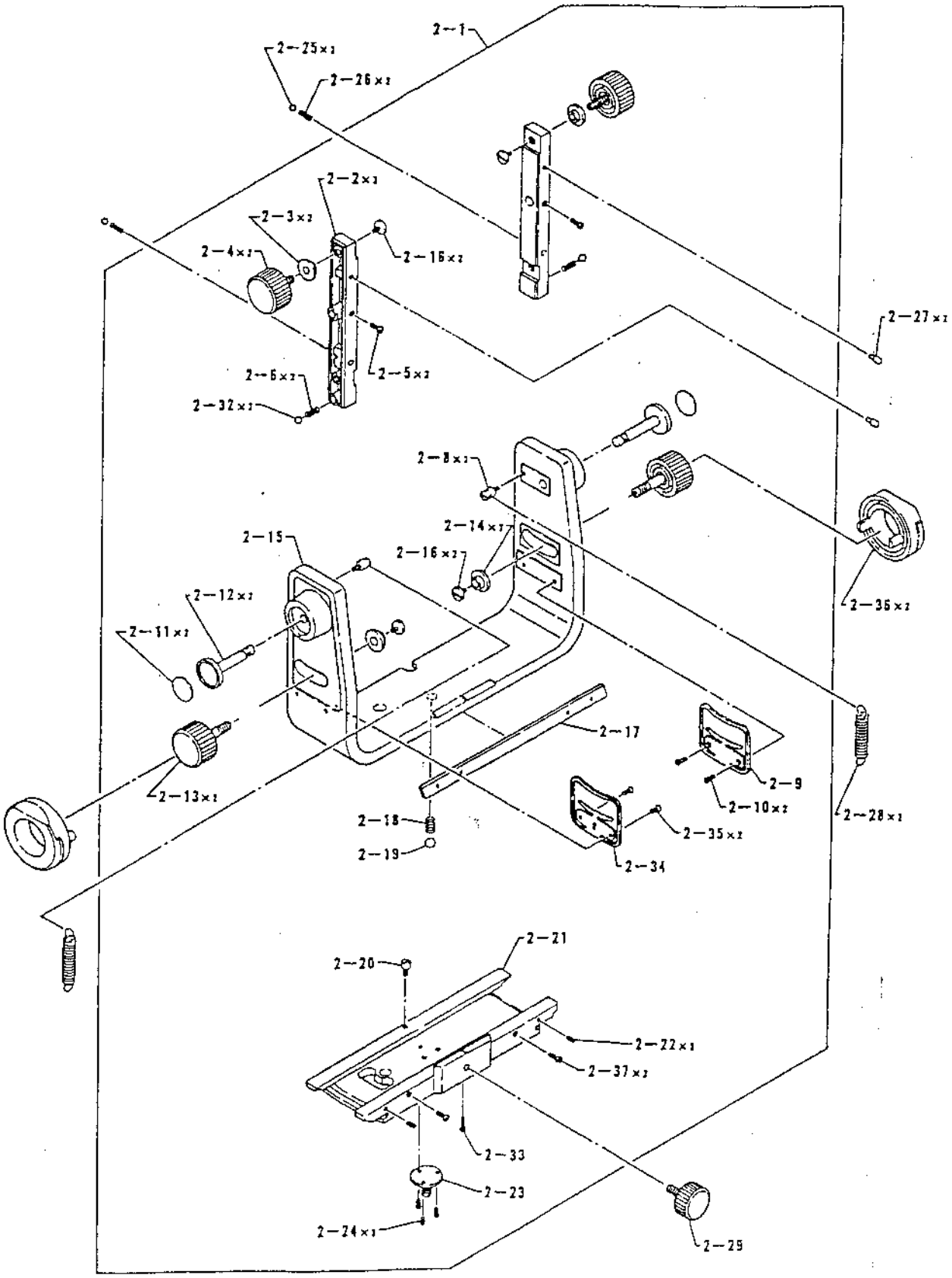


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
1-36	28B 4572000	Frame	1	
1-37	11B 4572170	Pin board seat	1	
1-38	53B 4572350	Screw	2	
1-39	30B 4572151	Lens board guide	1	
1-40	50B 4572142	Hook plate	1	
1-41	110M 200401N	Screw	3	
1-42	53B 4572070	Screw	2	
1-44	33A 4571920	Right holding plate assembly 1-45, 1-46	1	
1-47	30A 4571940	Left shift holder assembly 1-48, 1-51, 1-52, $1\text{-}53^{x2}$, $1\text{-}54^{x2}$	1	
1-48	30A 4571910	Left holding plate assembly 1-49, 1-50	1	
1-51	47B 4572230	Slide plate	1	
1-52	50B 4572260	Friction plate	1	
1-53	30B 4572250	Guide shaft	2	
1-54	110M 200001N	Screw	2	
1-55	30A 4571950	Right shift holder assembly 1-44, $1\text{-}56^{x2}$, $1\text{-}57^{x2}$	1	
1-56	50B 4572280	Hook plate	2	
1-57	110M 170301N	Screw	4	
1-58	30B 4572270	Bellows guide	2	
1-59	30B 4572270	Bellows guide	2	
1-60	110M 200401M	Screw	3	
1-61	110M 200401M	Screw	3	
1-62	110M 200401M	Screw	2	
1-63	110M 200401M	Screw	2	
1-64	115A 4571970	X-contact seat assembly	1	
1-65				
1-67	111M 170401N	Screw	3	
1-68	55B 4572521	Spacer	1	

1. FUJI GX680

Fig. 2

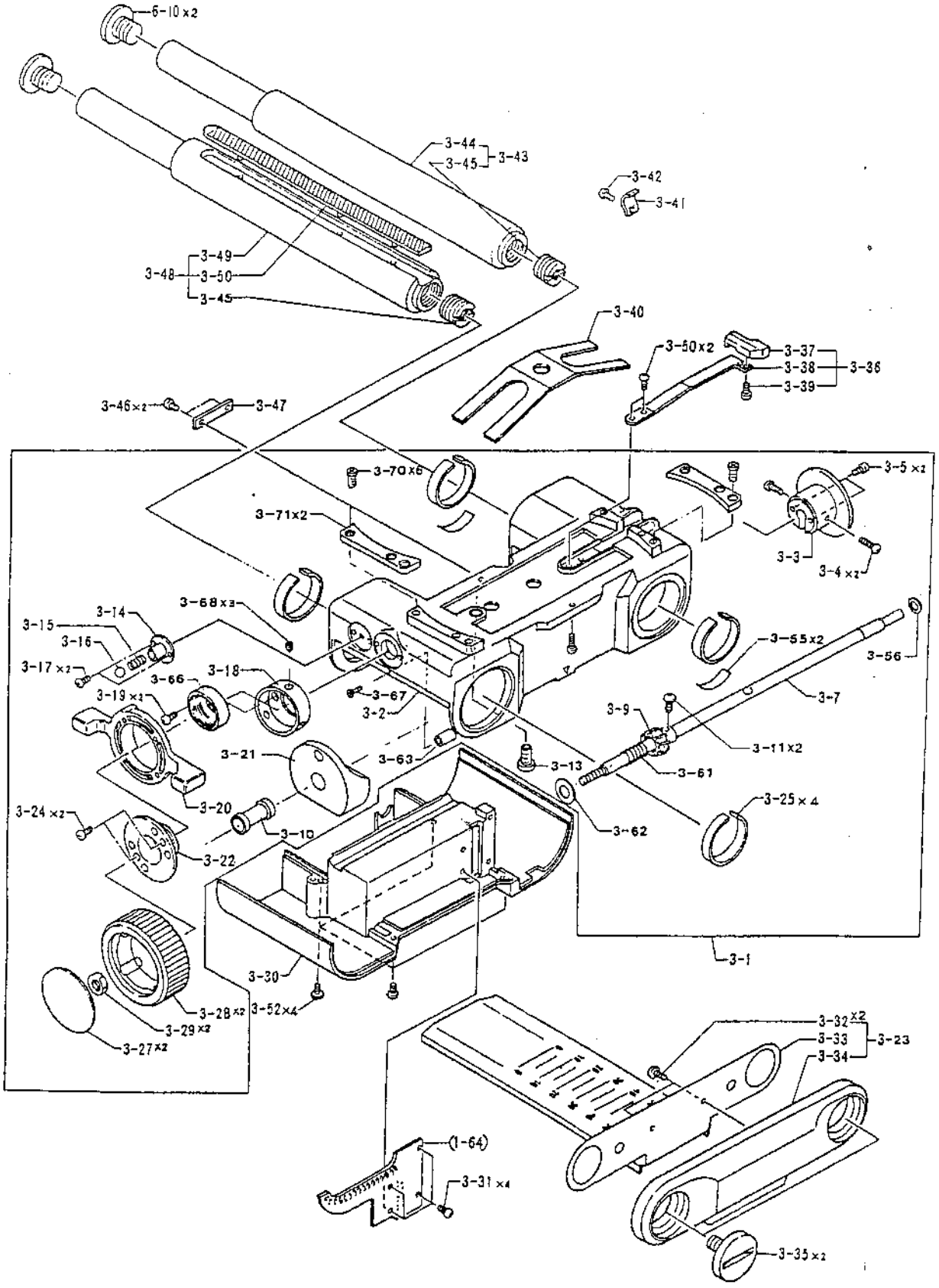


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
2- 1	29A 4571651	Standard assembly 2-2~2-24	1	
2- 2	30B 4571713	Support	2	
2- 3	55B 4571790	Spacer	2	
2- 4	16A 4571660	Tightener knob assembly	2	
2- 5	110M 170501M	Screw	2	
2- 6	50B 4571750	Spring	2	
2- 7	30B 4571760	Ball guide	2	
2- 8	53B 4571870	Arbor	2	
2- 9	50B 4571800	Click plate	1	
2-10	111M 200401N	Screw	2	
2-11	79B 4571733	Index plate	2	
2-12	32B 4571723	Shaft	2	
2-13	16A 4571670	Tightener knob assembly	2	
2-14	55B 4572310	Spacer	2	
2-16	53B 4571880	Screw	4	
2-18	50B 4571830	Spring	1	
2-19	200M 40	Steel ball	1	
2-20	53B 4571530	Screw	1	
2-22	120M 200301S	Screw	4	
2-23	32B 4571510	Guide shaft	1	
2-24	111M 170301M	Screw	3	
2-25	200M 30	Steel ball	2	
2-26	50B 4571750	Spring	2	
2-27	17B 4571812	Index pin	2	
2-28	50K 588530	Spring	2	
2-29	16B 4571540	Lock knob	1	
2-32	200M 30	Steel ball	2	
2-33	111M 140501M	Screw	1	
2-34	50B 4571862	Click plate	1	
2-35	110M 200401N	Screw	2	
2-36	87B 4567610	Tilt stopper	2	

1. FUJI GX680

Fig. 3

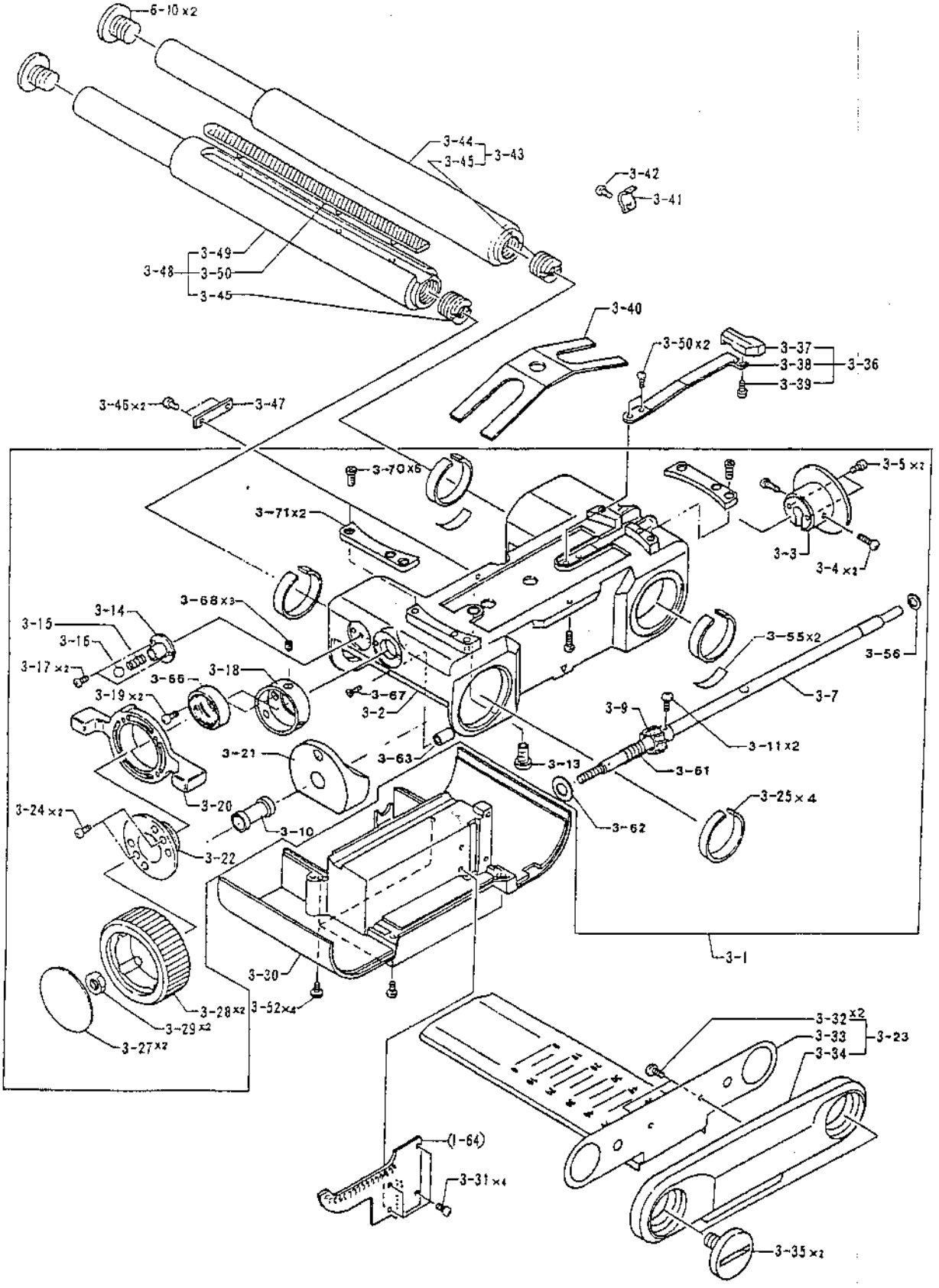


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
3- 1	10A 4570901	Carrier base assembly 3-2 ~ 3-30	1	
3- 3	31B 4571140	Right shaft holder	1	
3- 4	53B 4572370	Screw	2	
3- 5	110M 200401M	Screw	2	
3- 7	32B 4571020	Tightener shaft	1	
3- 9	34B 4571030	Pinion	1	
3-10	80B 4571063	Collar	1	
3-11	110M 170301M	Screw	2	
3-12				
3-13	110M 400550M	Screw	1	
3-14	87B 4571120	Stopper	1	
3-15	50B 4571750	Spring	1	
3-16	200M 30	Steel ball	1	
3-17	53B 4572360	Screw	2	
3-18	31B 4571053	Left shaft holder	1	
3-19	110M 200401M	Screw	4	
3-20	47B 4571080	Focusing lock lever	1	
3-21	29B 4571244	Lock base	1	
3-22	53B 4571072	Screw	1	
3-23	11A 4566710	Front cover assembly 3-32, 3-33, 3-34	1	
3-24	113M 200401M	Screw	2	
3-25	30B 4571170	Collar	4	
3-27	58B 4571110	Cover plate	2	
3-28	16A 4570940	Focusing knob	2	
3-29	150M 0401F	Nut	2	
3-30	11B 4571010	Base cover	1	
3-31	113M 170401M	Screw	4	
3-32	113M 200401M	Screw	2	
3-33	11B 4567183	Cover	1	

1. FUJI GX680

Fig. 3

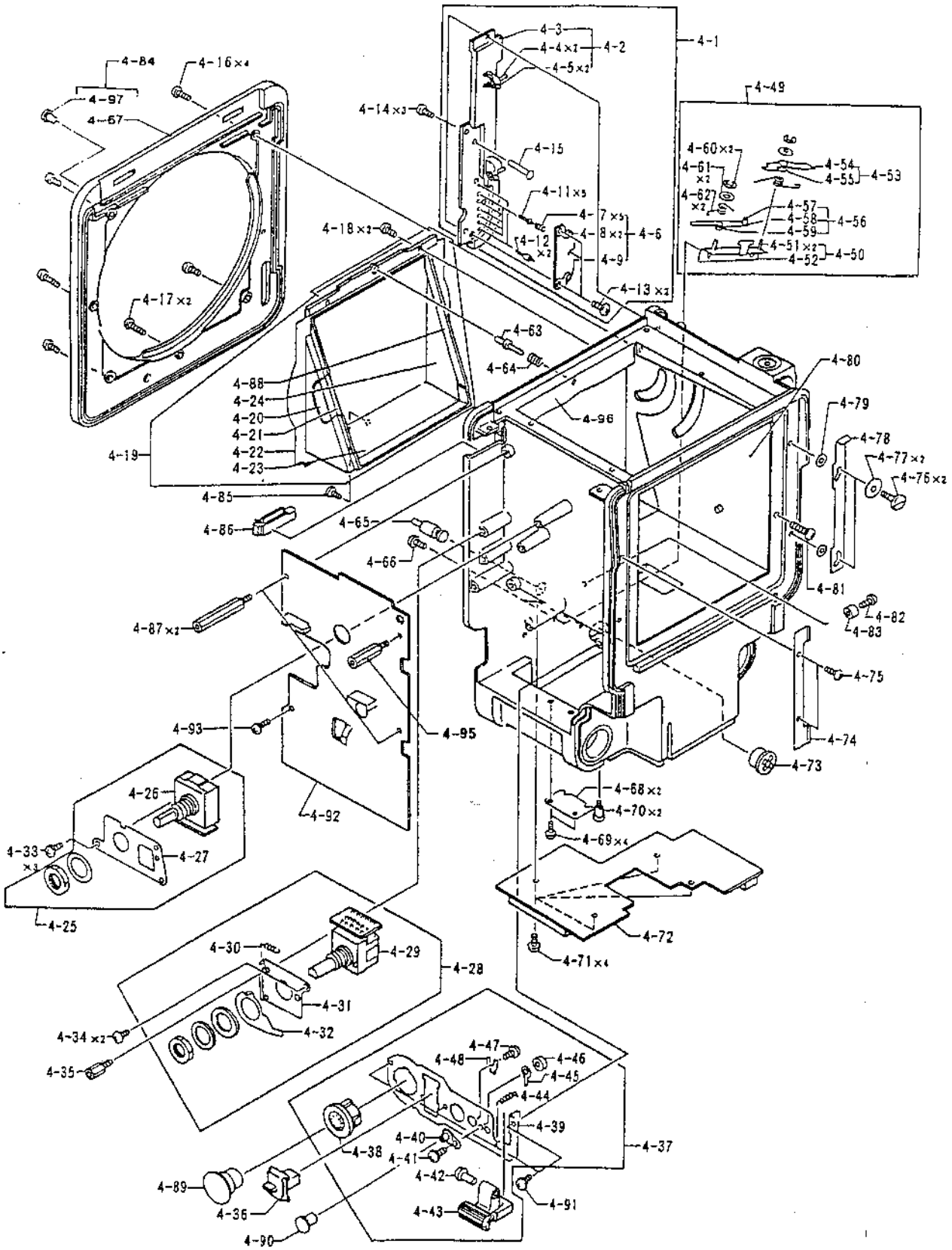


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
3-34	11B 4567160	Cover frame	1	
3-35	53B 4567170	Screw	2	
3-36	16A 4570950	Shift lock lever assembly 3-37, 3-38, 3-39	1	
3-37	50B 4571213	Leaf spring	1	
3-38	16B 4571220	Knob	1	
3-39	113M 140301N	Screw	1	
3-40	50B 4571520	Leaf spring	1	
3-41	87B 4571550	Cord clamp	1	
3-42	110M 170301M	Screw	1	
3-43	30A 4567860	Rail assembly B 3-44, 3-45	1	
3-44	30B 4568560	Rail B	1	
3-45	53B 4568580	Screw	2	
3-46	110M 170301M	Screw	2	
3-47	87B 4571230	Cord clamp	1	
3-48	30A 4567850	Rail assembly A 3-45, 3-49, 3-50	1	
3-49	30B 4568550	Rail A	1	
3-50	34B 4568570	Rack	1	
3-52	110M 170501M	Screw	4	
3-55	50B 4571590	Leaf spring	2	
3-56	55B 4572610	Washer	1	
3-56	55B 4572620	Washer	1	
3-56	55B 4572630	Washer	1	
3-61	50B 4571281	Spring	1	
3-62	55B 4571291	Washer	1	
3-63	54B 4571302	Nut	1	
3-64	60B 4571320	Ring sheet	2	
3-65	60B 4571330	Cover sheet	1	
3-66	31B 4571340	Shaft holder	1	
3-67	111M 170601M	Screw	1	
3-68	120M 200201B	Screw	3	
3-70	110M 200601C	Screw	6	
3-71	85B 4572580	Eaves	2	

1. FUJI GX680

Fig. 4

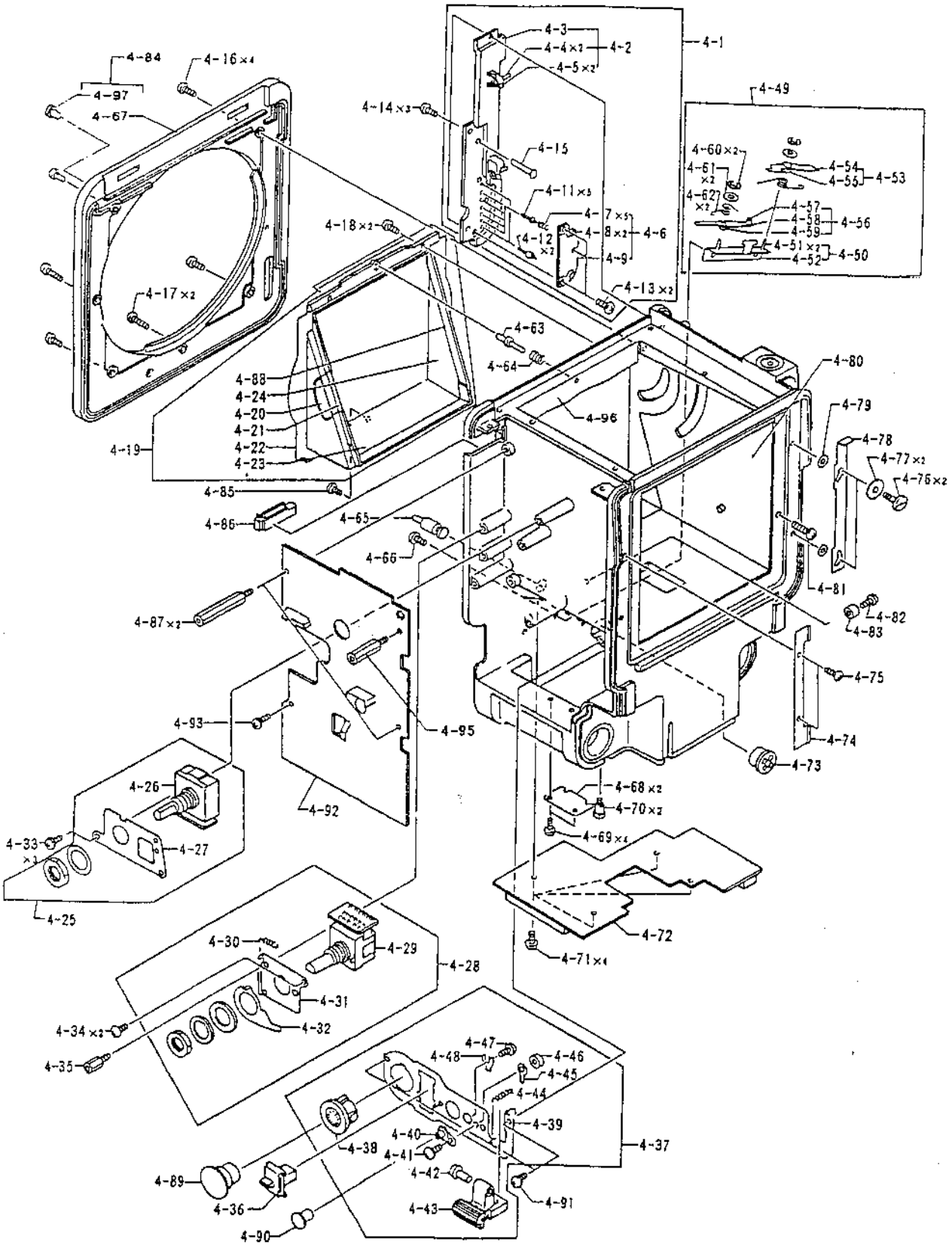


1. FUJI GX680

Ref No.	Part No.	Part Name		Q'ty	Remarks
4- 1	27A 4566680	Light sheilding wall assembly		1	
			4-2, 4-6, 4-11, 4-12		
4- 2	108A 4566700	Terminal assembly	4-4, 4-5	1	
4- 6	110A 4574680	Pin board assembly	4-7, 4-8, 4-9	1	
4-11	109B 4567072	Contact pin		5	
4-12	109B 4567080	Contact pin		2	
4-13	113M 170301M	Screw		2	
4-14	110M 200401M	Screw		3	
4-15	17B 4567030	Pin		1	
4-16	53B 4569760	Screw		4	
4-17	53B 4569740	Screw		2	
4-18	110M 200401M	Screw		2	
4-19	27A 4567941	Seat frame assembly	4-20, 4-21, 4-22, 4-23,	1	
			4-24, 4-88		
4-20	27B 4569880	Moquette		1	
4-21	27B 4569090	Moquette		1	
4-23	27B 4569861	Moquette		1	
4-24	27B 4569870	Moquette		1	
4-25	121A 454740	SV switch assembly	4-26, 4-27	1	
4-26					
4-27					
4-28	121A 4574750	Main switch assembly	4-29, 4-30, 4-31, 4-32	1	
4-29					
4-30	50B 4124940	Spring		1	
4-31					
4-32					
4-33	110M 200401M	Screw		3	
4-34	110M 200401M	Screw		2	
4-35	54B 4569300	Hex column		1	
4-36	16B 4567280	Mirror switch button		1	
4-37	112A 4574760	Receptacle assembly	4-38~4-48	1	
4-38	112K 586520	Remote control jack		1	

1. FUJI GX680

Fig. 4

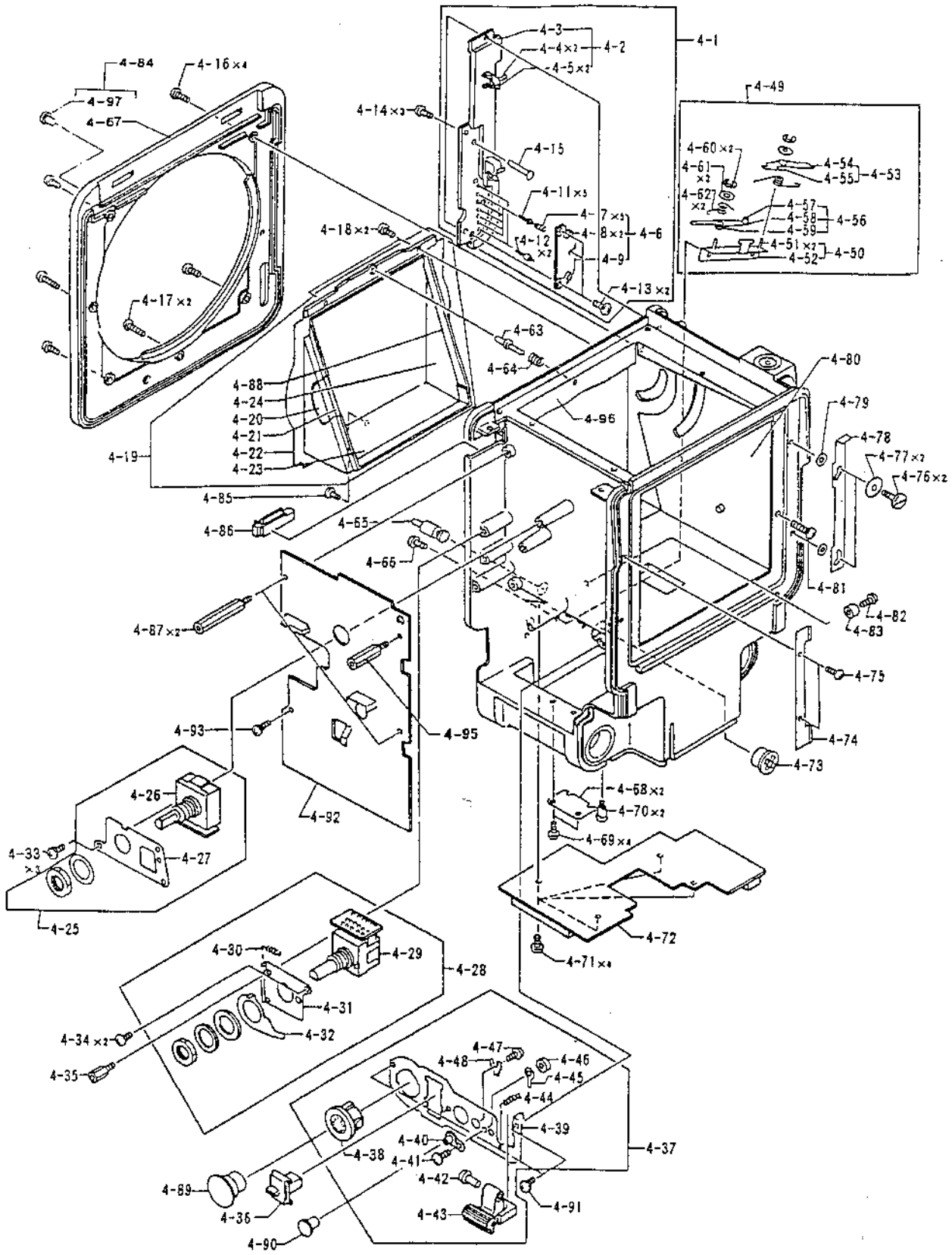


1. FUJI GX680

Ref No.	Part No.	Part Name		Q'ty	Remarks
4-39					
4-40	112A 4570060	Synchro-socket assembly		1	
4-41	111M 170401N	Screw		1	
4-42					
4-43					
4-44	50B 4124940	Spring		1	
4-45	111B 383060	Lug		1	
4-46	150M 0171N	Nut		1	
4-47	112B 4570090	Contact		1	
4-48	108B 3281790	Lug		1	
4-49	46A 4567890	Lever assembly	4-50, 4-53, 4-56, 4-60, 4-61, 4-62	1	
4-50	32A 4567900	Base plate assembly	$4\text{-}51^{x2}$, 4-52	1	
4-53	47A 4567910	Lever assembly	4-54, 4-55	1	
4-56	47A 4567920	Lever assembly	4-57, 4-58, 4-59	1	
4-60	191M 012T	E-clip		2	
4-61	55K 588420	Washer		2	
4-62	50B 4569520	Spring		2	
4-63	17B 4569671	Interlock pin		1	
4-64	50B 4569680	Spring		1	
4-65	87B 4569530	Stopper pin		1	
4-66	110M 170401M	Screw		2	
4-67					
4-68	85B 4569850	PCB holder		1	
4-69	110M 200401M	Screw		2	
4-70	53B 4568601	Positioning screw		2	
4-71	110M 200401M	Screw		4	
4-72	110A 4574710	Connector board assembly		1	
4-73	16B 4569550	Button		1	
4-74	50B 4569201	Leaf spring		1	
4-75	110M 200353M	Screw		2	
4-76	53B 4569231	Screw		2	

1. FUJI GX680

Fig. 4

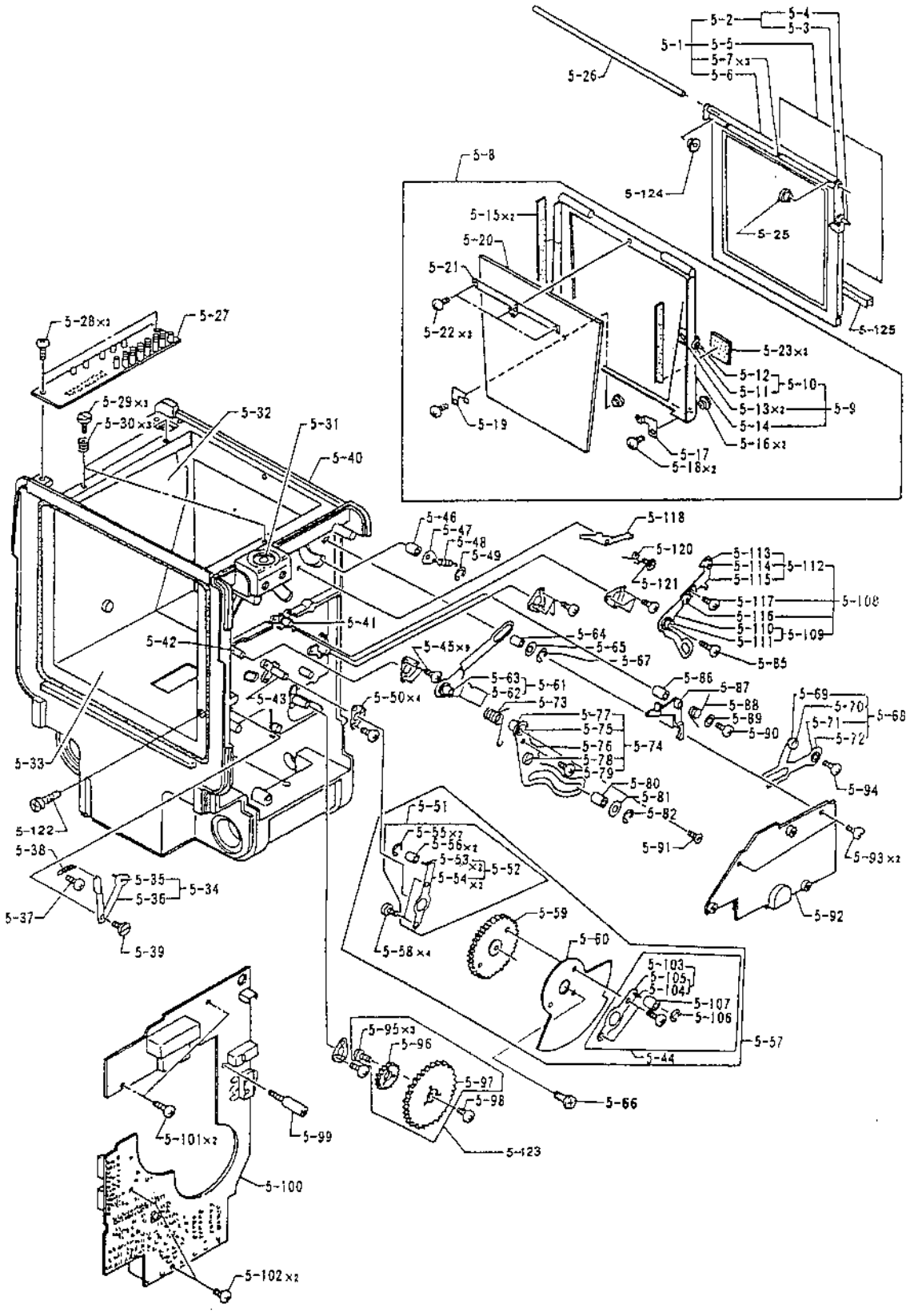


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
4-77	50K 588480	Washer	2	
4-78	47B 4569221	Bellows holder	1	
4-79	55K 588450	Washer	2	
4-80	27B 4569071	Moquette (left)	1	
4-81	110M 200901M	Screw	1	
4-82	110M 200301M	Screw	1	
4-83	30B 4569112	Collar	1	
4-84	23A 4567960	Lens mount assembly 4-67, 4-97	1	
4-85	53B 4569940	Screw	1	
4-86	81B 4569271	Stopper	1	
4-87	54B 4569290	Hex column	2	
4-88	27B 4569712	Moquette	1	
4-89	57B 4566872	Cap	1	
4-90	57B 4566882	Cap	1	
4-91	110M 200301M	Screw	3	
4-92	110A 4574690	Switch board assembly	1	
4-93	110M 200401M	Screw	1	
4-95	54B 4569311	Hex column	1	
4-96	27B 4569611	Light shielder	1	

1. FUJI GX680

Fig. 5

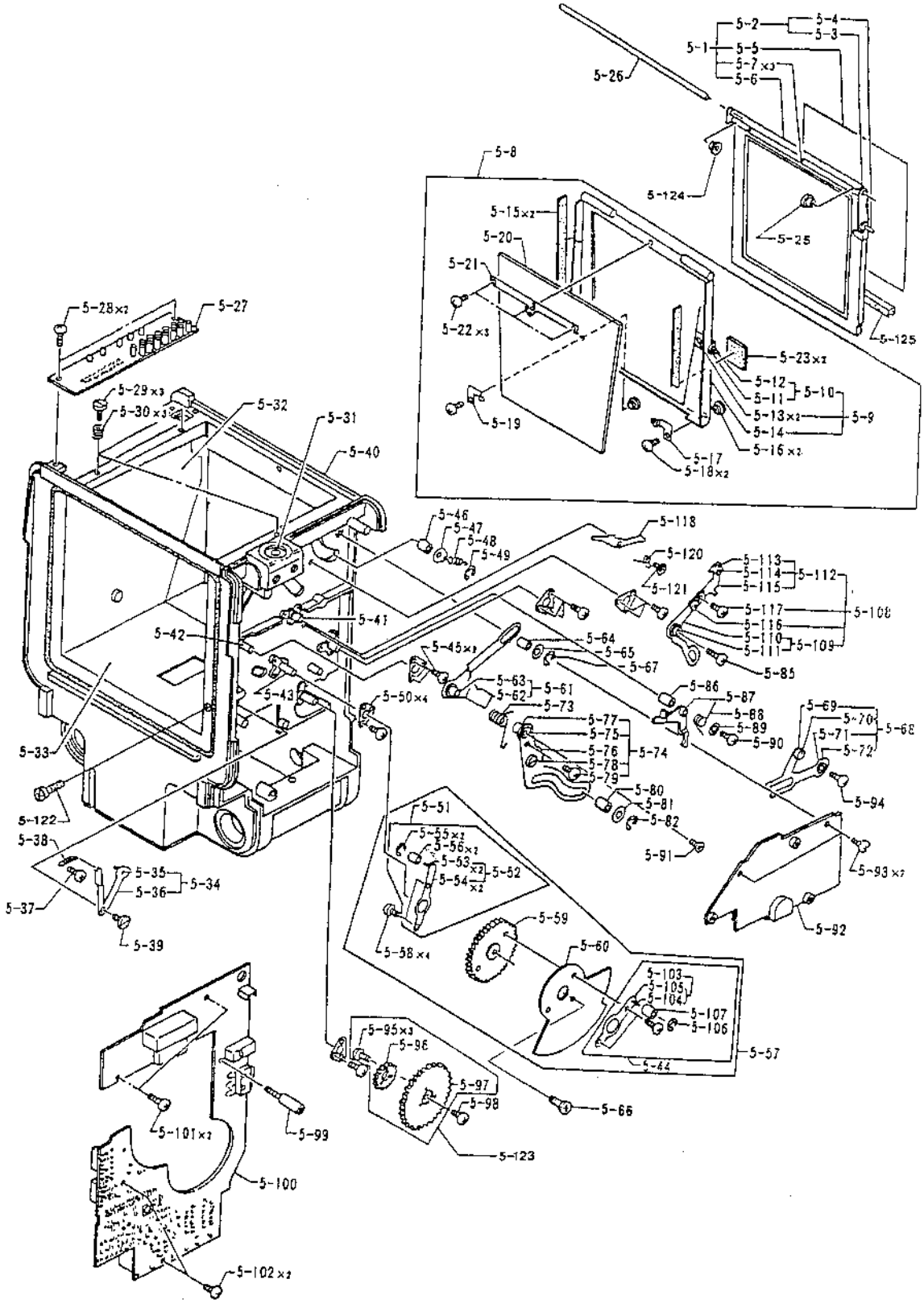


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
5- 1	27A 4567701	Light shielding plate assembly 5-2, 5-5, 5-6, 5-7	1	
5- 5	27B 4569250	Moquette	1	
5- 8	3A 4567673	Mirror assembly 5-9, 5-10, 5-15 ~ 5-22	1	
5-15	27B 4576100	Moquette	2	
5-16	87B 4568480	Stopper	2	
5-17	50B 4568441	Mirror holder (left)	1	
5-18	110M 140151M	Screw	2	
5-19	50B 4569621	Mirror holder (right)	1	
5-20	3B 4586640	Mirror	1	
5-21	50B 4568431	Mirror holder (L)	1	
5-22	110M 140151M	Screw	3	
5-23	27B 4569630	Moquette	2	
5-24				
5-25	31B 4568512	Shaft holder (L)	2	
5-26	32B 4568530	Shaft	1	
5-27	110A 4574700	LED board assembly	1	
5-28	110M 200301M	Screw	2	
5-29	53B 4569400	Adjust screw	3	
5-30	50K 588510	Spring	3	
5-31	164A 4567660	Level assembly	1	
5-32	27B 4569061	Moquette (right)	1	
5-33	27B 4569050	Moquette (bottom)	1	
5-34	88A 4567720	Adjust lever assembly 5-35, 5-36	1	
5-37	110M 170201M	Screw	1	
5-38	50B 4568831	Spring	1	
5-39	32B 4568811	Shaft	1	
5-41	32B 4568842	Shaft	2	
5-42	32B 4568612	Shaft	1	
5-43	32B 4568751	Shaft	2	
5-44	30A 4567820	Roller assembly (S) 5-103, 5-106, 5-107	1	
5-45	110M 200301M	Screw	9	
5-46	30B 4568710	Roller	1	

1. FUJI GX680

Fig. 5

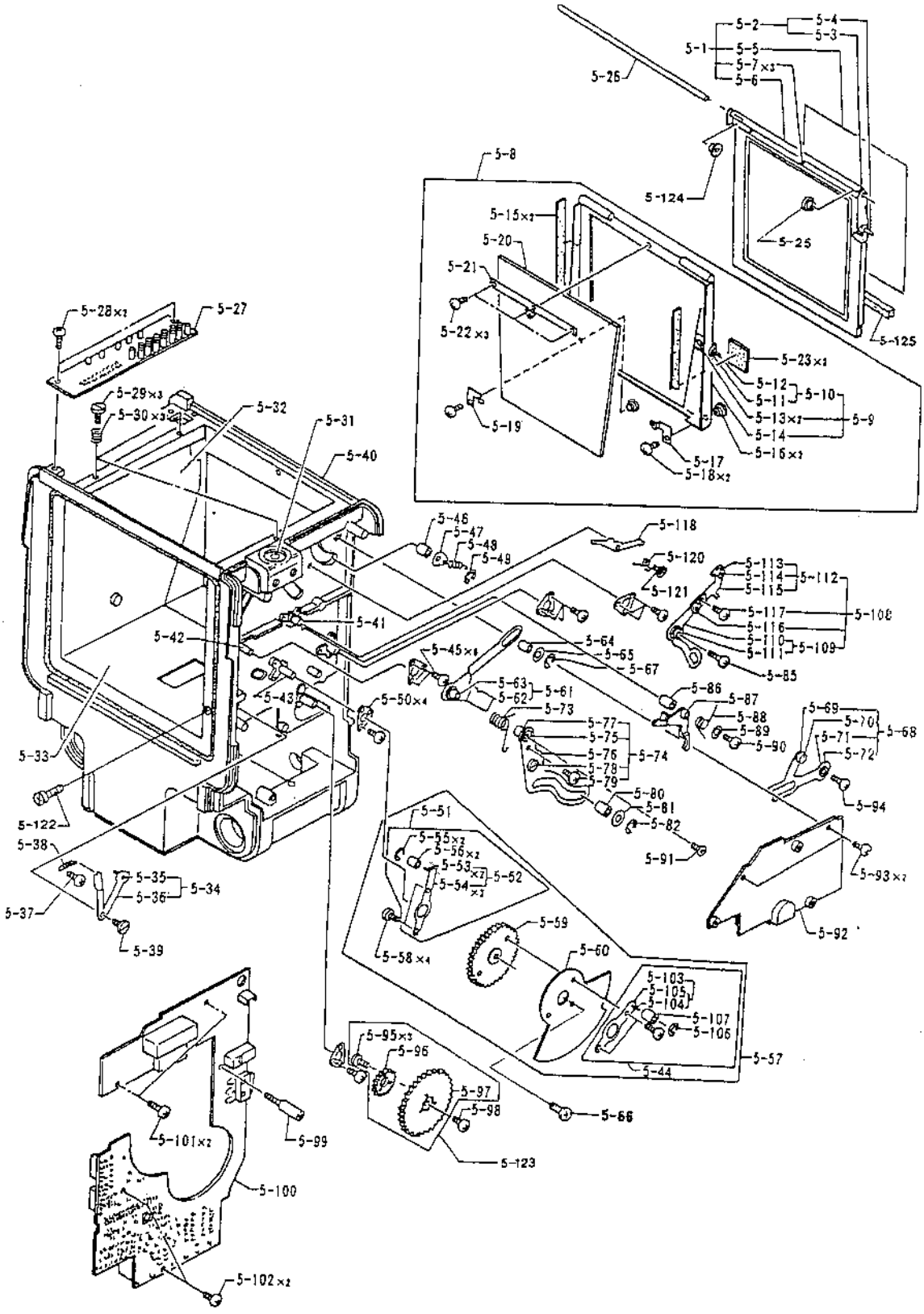


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
5-47	55B 4568520	Washer	1	
5-48	50B 4568920	Spring	1	
5-49	191M 012T	E-clip	3	
5-50	85A 4568660	Holder	5	
5-51	30A 4567800	Roller assembly (L) 5-52, 5-55, 5-56	1	
5-52	47A 4567780	Roller base assembly 5-53, 5-54	1	
5-55	191M 012T	E-clip	1	
5-56	30B 4568470	Roller	1	
5-57	34A 4567821	Reflector assembly 5-44, 5-51, 5-58^{X4}, 5-59, 5-60	1	
5-58	113M 170301M	Screw	4	
5-59	34B 4568680	Gear	1	
5-60	49B 4568740	Reflector	1	
5-61	47A 4567830	Drive lever assembly 5-62, 5-63	1	
5-64	30B 4568470	Roller	2	
5-65	55K 588420	Washer	2	
5-66	55B 4340711	Screw	1	
5-67	191M 012T	E-clip	2	
5-68	47B 4567730	Lever assembly	1	
5-73	50B 4568650	Spring	1	
5-74	47A 4567841	Interlock lever assembly 5-75 ~ 5-79	1	
5-79	110M 170253M	Screw	1	
5-80	30B 4568470	Roller	1	
5-81	55K 588420	Washer	1	
5-82	191M 012T	E-clip	1	
5-85	53B 4340711	Screw	5	
5-86	30B 4568970	Collar	1	
5-87	80B 1568960	Brake	1	
5-88	50B 4568980	Spring	1	
5-89	55K 588440	Washer	1	
5-90	110M 200651M	Screw	1	
5-91	53B 4340711	Screw	1	
5-92	27B 4568400	Light shielding wall	1	

1. FUJI GX680

Fig. 5

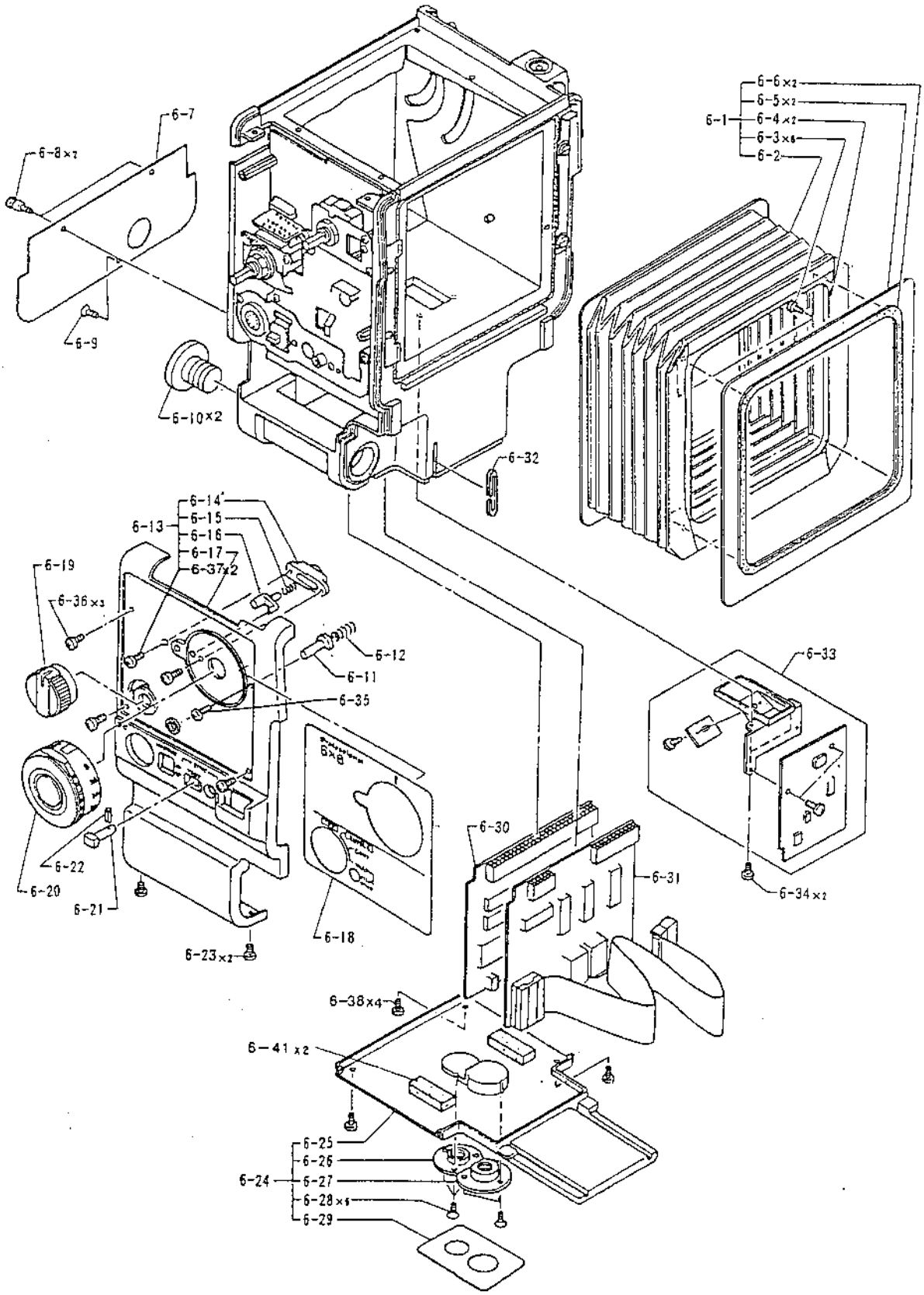


1. FUJI GX680

Ref No.	Part No.	Part Name		Q'ty	Remarks
5- 93	110M 200401M	Screw		2	
5- 94	53B 4340711	Screw		1	
5- 95	114M 170501M	Screw		3	
5- 96	34B 4568760	Gear		1	
5- 97	34B 4568770	Gear		1	
5- 98	53B 4340711	Screw		1	
5- 99	32B 4569280	Column		1	
5-100	110A 4574670	Mirror PCB assembly		1	
5-101	113M 200453M	Screw		2	
5-102	110M 200401M	Screw		2	
5-103	47A 4567791	Roller base assembly (S)	5-104, 5-105	1	
5-106	191M 012T	E-clip		1	
5-107	30B 4568710	Roller		1	
5-108	47A 4567740	Lever assembly	5-109, 5-112, 5-116, 5-117	1	
5-117	110M 170253M	Screw		1	
5-118	87B 4568930	Stop lever		1	
5-119					
5-120	50B 4568950	Spring		1	
5-121	32B 4568940	Screw		1	
5-122	110M 200901M	Screw		1	
5-123	34A 4567820	Gear assembly	5-95^{x3}, 5-96, 5-97	1	
5-124	95B 4568514	Shaft holder (Small)		1	
5-125	27B 4569990	Moquette		1	

1. FUJI GX680

Fig. 6

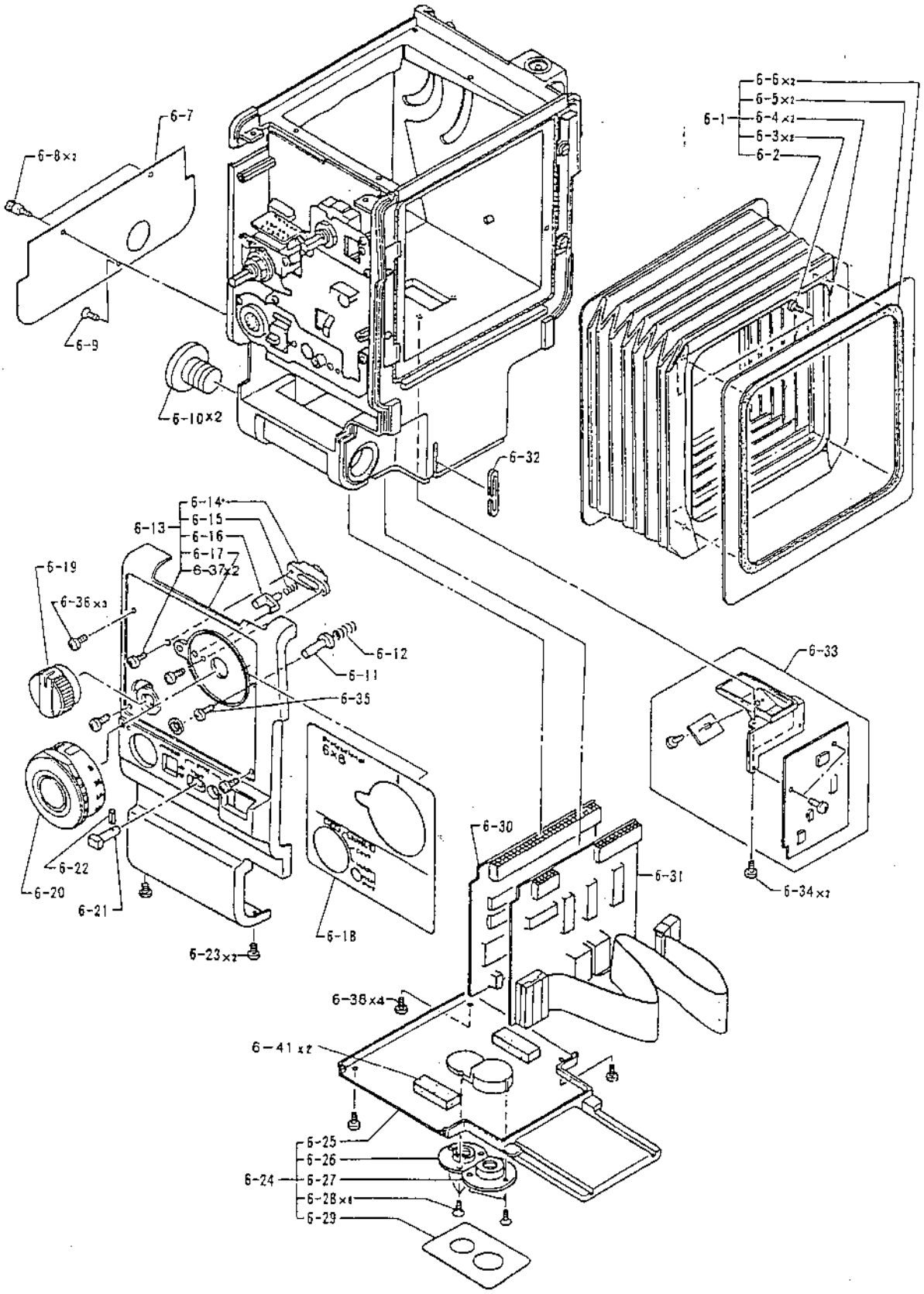


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
6- 1	100A 12154A01	Standard bellows assembly 6-2 ~ 6-6	1	
6- 2				
6- 3	111M 170223S	Screw	8	
6- 4				
6- 5				
6- 6	27B 4580030	Moquette	2	
6- 7	58B 4569260	Number plate	1	
6- 8	32B 4569411	Shaft	2	
6- 9	53B 4569760	Screw	1	
6-10	53B 4568590	Screw	2	
6-11	16B 4567290	Button	1	
6-12	50B 4567300	Spring	1	
6-13	303A 4566650	Left side cover assembly 6-14, 6-15, 6-16, 6-17, 6-21, 6-22, 6-37^{x2}	1	
6-14	82B 4567530	Seat plate	1	
6-15	50B 4567550	Spring	1	
6-16	16B 4567540	AE mode lock button	1	
6-17	11B 4567240	Left side cover	1	
6-18	58B 4567500	Name plate	1	
6-19	16B 4567440	Mode dial	1	
6-20	16B 4567470	Shutter dial	1	
6-21	16B 4567270	Synchro test button	1	
6-22	182M 100401H	Spring pin	1	
6-23	53B 4569760	Screw	2	
6-24	303A 4566660	Bottom cover assembly 6-25, 6-26, 6-27, 6-28^{x6}, 6-29	1	
6-25	11B 4566890	Bottom cover	1	
6-26	54B 4567110	Tripod socket (S)	1	
6-27	54B 4567120	Tripod socket (L)	1	
6-28	111M 230501M	Screw	6	
6-29	59B 4567190	Leather	1	

1. FUJI GX680

Fig. 6

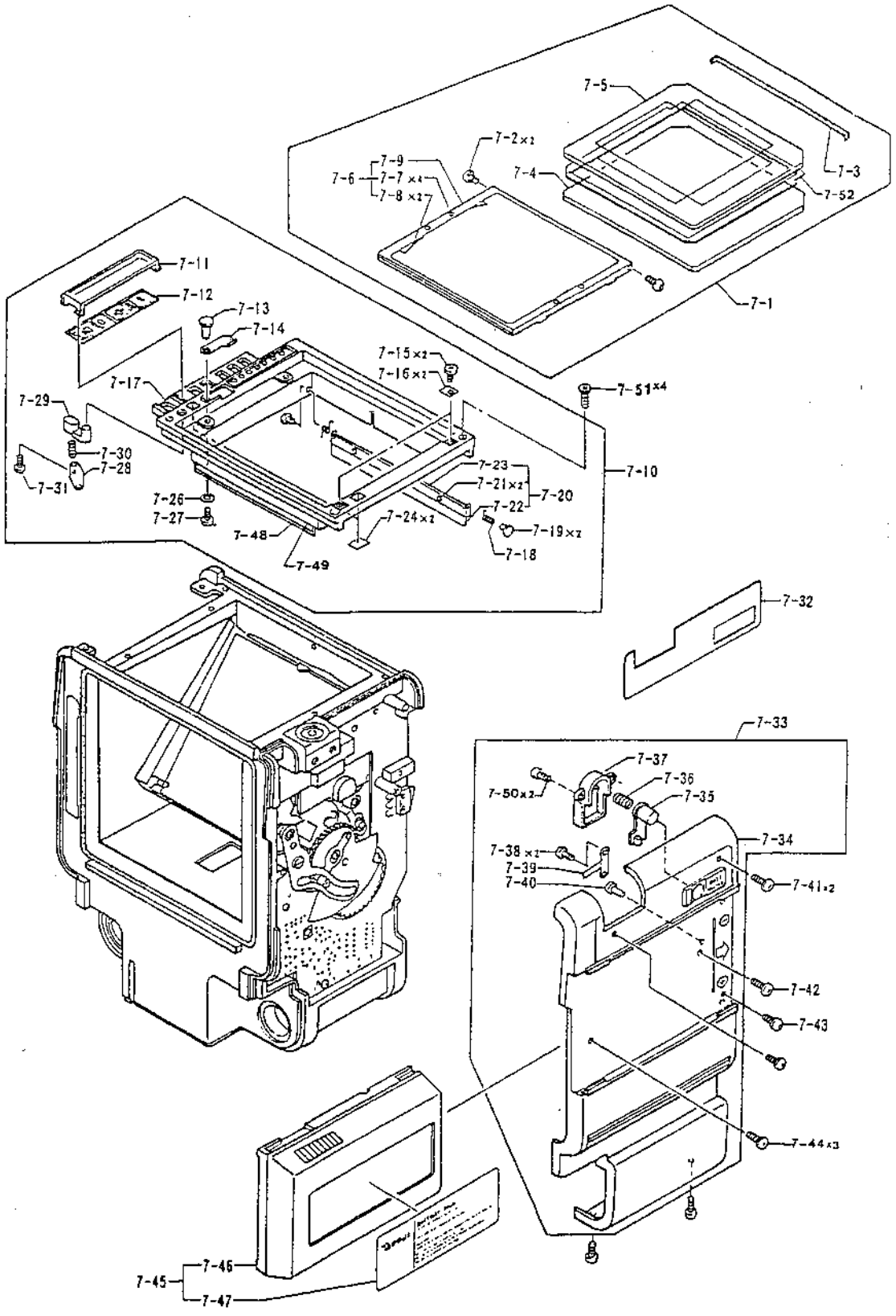


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
6-30	110A 4574640	CPU assembly	1	
6-31	110A 4574650	Interface board assembly	1	
6-32	51B 4567230	Cable protector	1	
6-33	110A 4574660	Light measuring board assembly	1	
6-34	110M 200501M	Screw	2	
6-35	110M 170601M	Screw	1	
6-36	110M 200501M	Screw	3	
6-37	113M 200451M	Screw	2	
6-38	53B 4569750	Screw	4	
6-41	27B 4567970	Moquette	2	
6-42	27B 4567600	Moquette	1	
6-43	24B 4570111	Sleeve	1	

1. FUJI GX680

Fig. 7

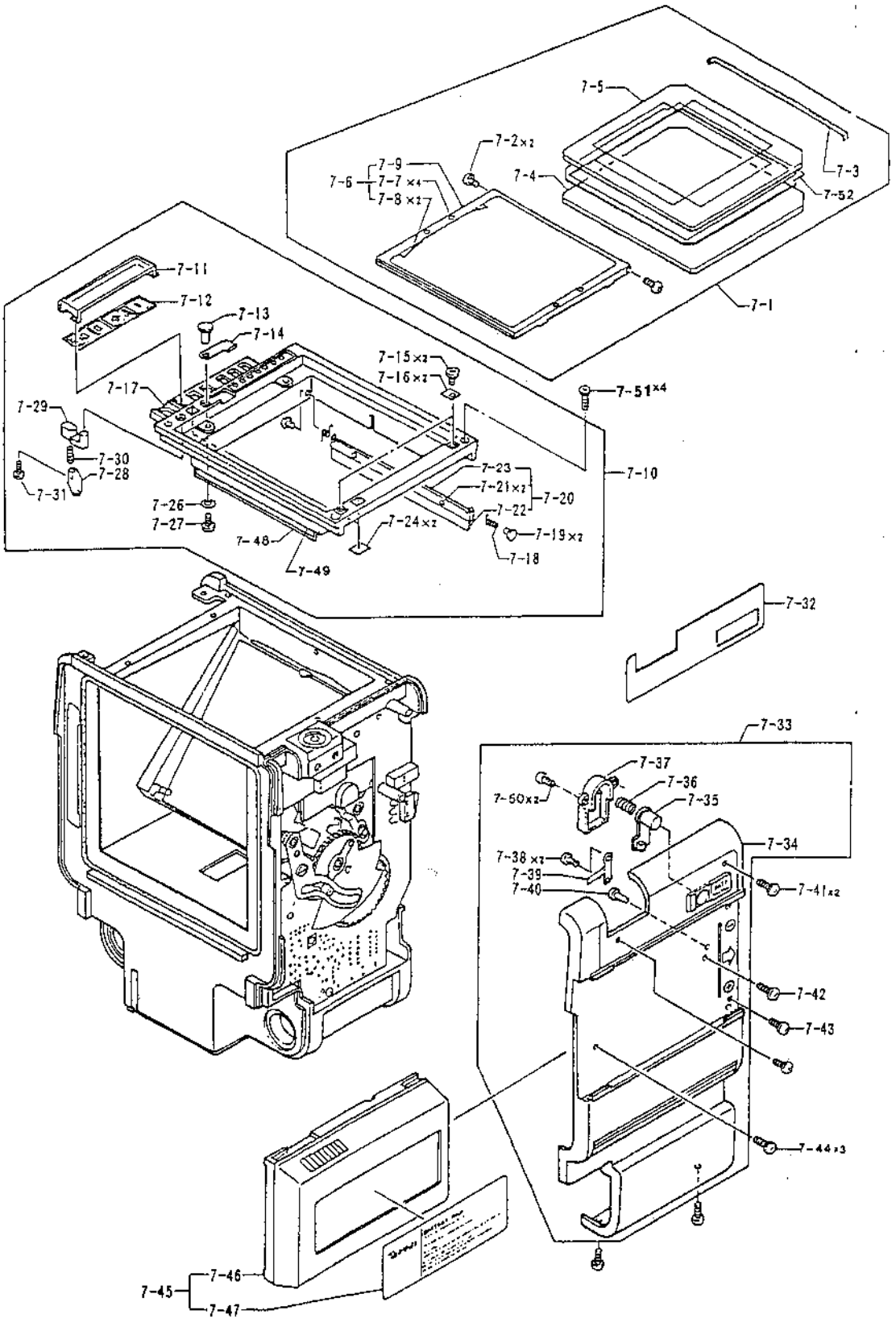


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
7- 1	100A 12146A01	Focusing screen assembly A 7-2~7-6	1	
7- 2	53B 4580000	Screw	2	
7- 3	10B 4579950	Frame II	1	
7- 4	5B 4586650	Ground glass	1	
7- 5	66B 4579990	Reticle	1	
7- 6	10A 4580010	Frame assembly 7-7, 7-8, 7-9	1	
7-10	11A 4567880	Top cover assembly 7-11~7-31, 7-48, 7-49	1	
7-11	11B 4569842	Contact cover	1	
7-12	85B 4567380	LED display panel	1	
7-13	17B 4569330	Pin	1	
7-14	47B 4569340	Lock lever	1	
7-16	85B 4569380	Glass holder	2	
7-17	11B 4569321	Top cover	1	
7-18	50B 4569820	Spring	1	
7-19	17B 4569651	Pin	2	
7-20	86A 4567870	Blade assembly 7-21, 7-22, 7-23	1	
7-24	85B 4569350	Plate	2	
7-25				
7-26	55B 4569361	Washer	1	
7-27	110M 170301M	Screw	1	
7-28	85B 4569831	Spring holder	1	
7-29	16B 4569370	Lock button	1	
7-30	50B 4569390	Spring	1	
7-31	114M 170301M	Screw	2	
7-32	84B 4566990	Cover plate	1	
7-33	303A 4566640	Right side cover assembly 7-34~7-44, 7-50	1	
7-34	11B 4566900	Right side cover	1	
7-35	16B 4566910	Battery lock/release button	1	
7-36	50K 588410	Spring	1	
7-37	11B 4566930	Lock cover	1	
7-38	113M 170351M	Screw	2	
7-39	50B 4566940	Leaf spring	1	

1. FUJI GX680

Fig. 7

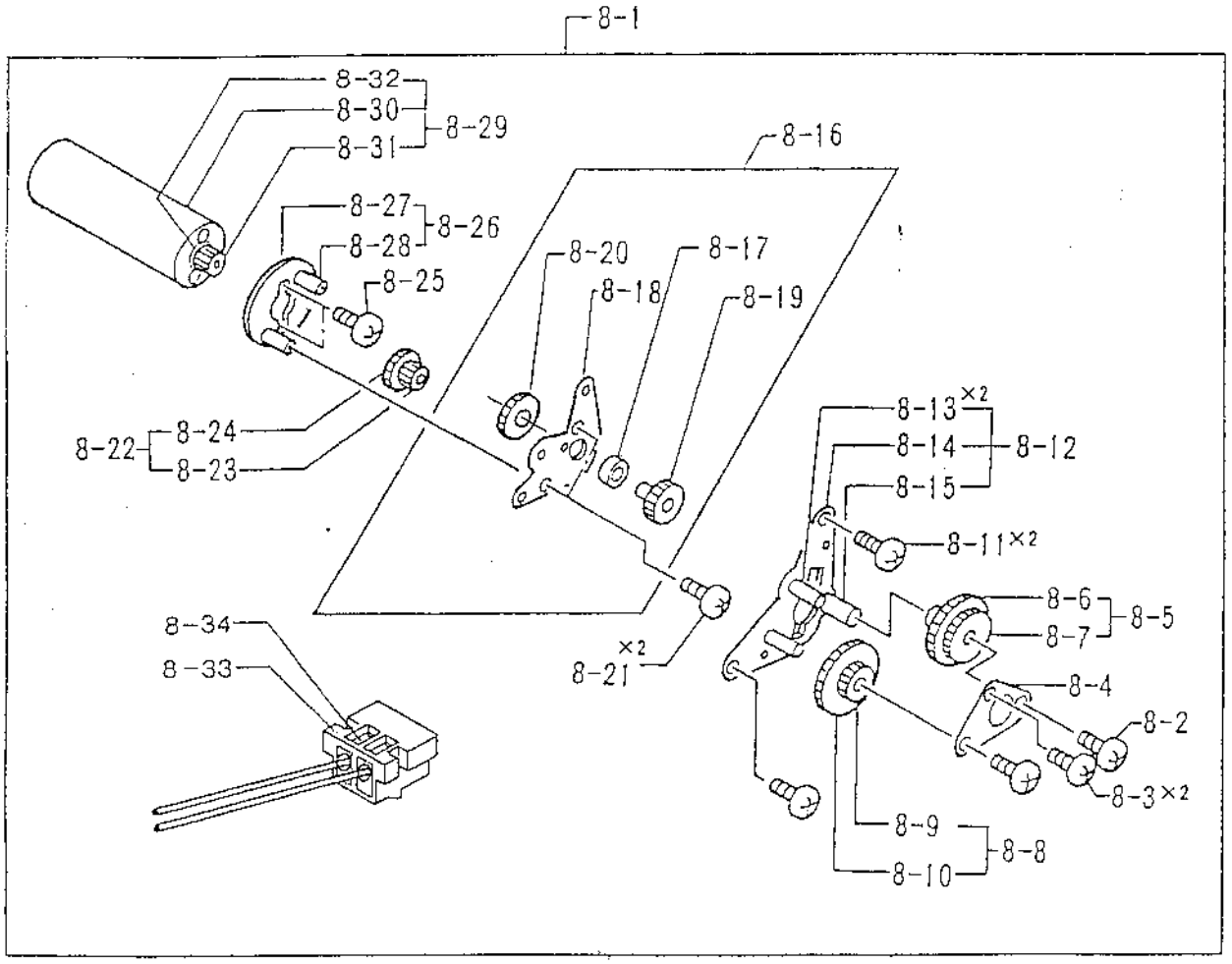


1. FUJI GX680

Ref No.	Part No.	Part Name	Q'ty	Remarks
7-40	17B 4566950	Pin	1	
7-41	110M 200501M	Screw	2	
7-42	53B 4569770	Screw	1	
7-43	53B 4569780	Screw	1	
7-44	53B 4569760	Screw	3	
7-45	100A 12155A00	Battery pack assembly 7-46, 7-47	1	
7-46	100A 12155A00	Battery pack assembly	1	
7-47	58B 4576730	Name plate	1	
7-48	27B 4576090	Light shielder	1	
7-49	95B 4576070	Light shielder	1	
7-50	113M 200503M	Screw	2	
7-51	110M 200111M	Screw	4	
7-52	5B 4580070	Spacer	1	
7-53	113M 170401N	Screw	2	

1. FUJI GX680

Fig. 8



1. FUJI GX680

Ref No.	Part No.	Part Name		Q'ty	Remarks
8- 1	327A 4567650	Mirror drive assembly	8-2, 8-3, 8-4, 8-5, 8-8, 8-11, 8-12, 8-16, 8-22, 8-25, 8-26, 8-29	1	
8- 2	53B 4575820	Screw		2	
8- 3	111M 140251M	Screw		1	
8- 4	46B 4575850	Bottom plate		1	
8- 5	34A 4574450	Gear assembly No. 5	8-6, 8-7	1	
8- 8	34A 4575770	Gear assembly No. 4	8-9, 8-10	1	
8-11	110M 170251M	Screw		2	
8-12	46A 4574430	Top plate assembly	8-13, 8-14, 8-15	1	
8-16	34A 4574420	Gear assembly No. 3	7-17, 7-18, 7-19, 7-20	1	
8-21	110M 170251M	Screw		2	
8-22	34A 4574400	Gear assembly No. 1		1	
8-25	110M 170251M	Screw		2	
8-26	46A 4574390	Motor mount assembly	8-27, 8-28	1	
8-29	101A 4574460	Motor assembly	8-30, 8-31, 8-32, 8-33, 8-34	1	

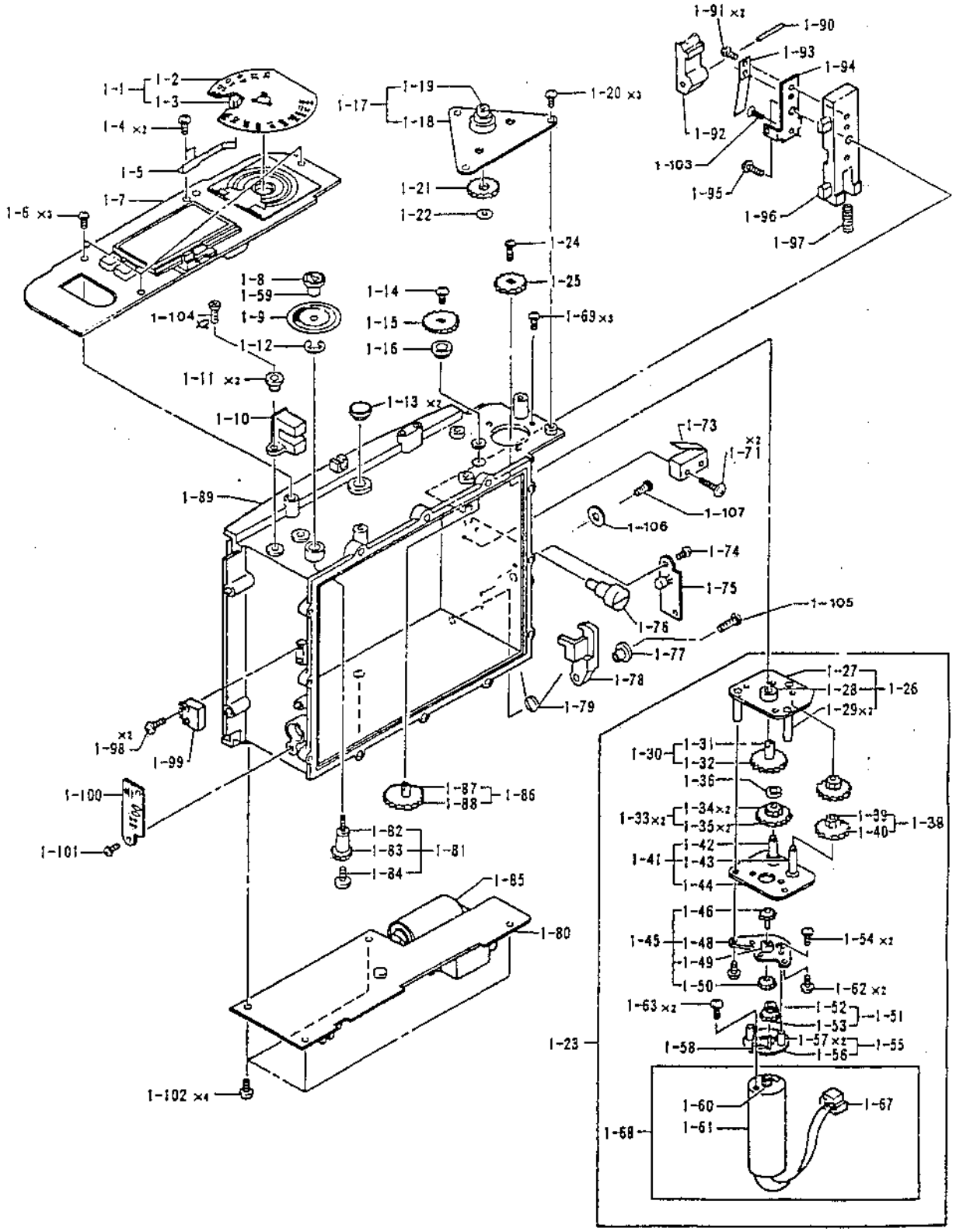
PARTS LIST

FOR

FUJI GX680
FILM HOLDER

2. FUJI GX680 FILM HOLDER (For 120 film)

Fig. 1

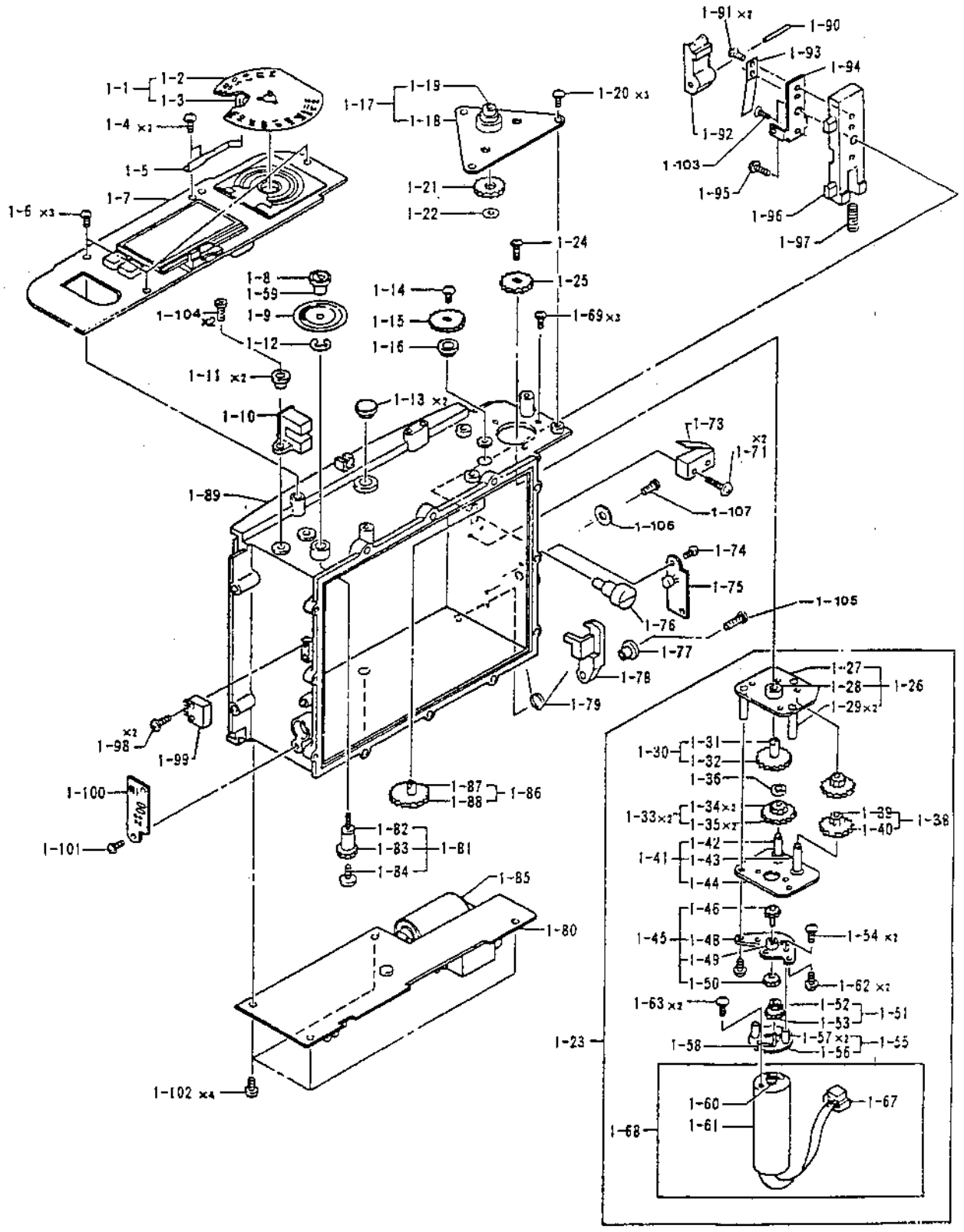


2. FUJI GX680 FILM HOLDER (For 120 film)

Ref No.	Part No.	Part Name		Q'ty	Remarks
1- 1	29A 4577430	Film speed dial assembly	1-2, 1-3	1	
1- 4	113M 170451N	Screw		2	
1- 5	50B 4578130	Leaf spring		1	
1- 6	113M 200401M	Screw		3	
1- 7	110A 4581630	LCD assembly		1	
1- 8	57B 4578170	Arrow plate		1	
1- 9	65B 4578150	Disc		1	
1-10	110A 4581610	PTK assembly		1	
1-11	42B 457788	Collar		2	
1-12	191M 30T	E-clip		1	
1-13	27B 4577601	Cover		1	
1-14	110M 170303M	Screw		1	
1-15	34B 4578200	Gear		1	
1-16	42B 4577870	Bushing		1	
1-17	46A 4577370	Base plate assembly	1-18, 1-19	1	
1-20	113M 200351M	Screw		3	
1-21	34B 4578070	Gear		1	
1-22	55B 4578080	Washer		1	
1-23	327A 4577290	Motor assembly	1-24, 1-25, 1-26, 1-30, 1-33, 1-34, 1-35, 1-38, 1-41, 1-45, 1-50, 1-51, $1\text{-}54^{x2}$, 1-55, 1-58, $1\text{-}62^{x2}$, $1\text{-}63^{x2}$, 1-68	1	
1-24	110M 170303M	Screw		1	
1-25	34B 4578050	Gear		1	
1-26	46A 4577310	Top plate assembly	1-27, 1-28, 1-29	1	
1-30	34A 4577300	Gear shaft assembly	1-31, 1-32	1	
1-33	34A 4574440	Gear assembly	1-34, 1-35	3	
1-36	42B 4577970	Spacer		1	
1-38	34A 4574440	Gear assembly	1-39, 1-40	1	
1-41	46A 4577320	Bottom plate assembly	1-42, 1-43, 1-44	1	
1-45	34A 4574450	Motor base plate assembly	1-46, 1-48, 1-49, 1-50	1	

2. FUJI GX680 FILM HOLDER (For 120 film)

Fig. 1

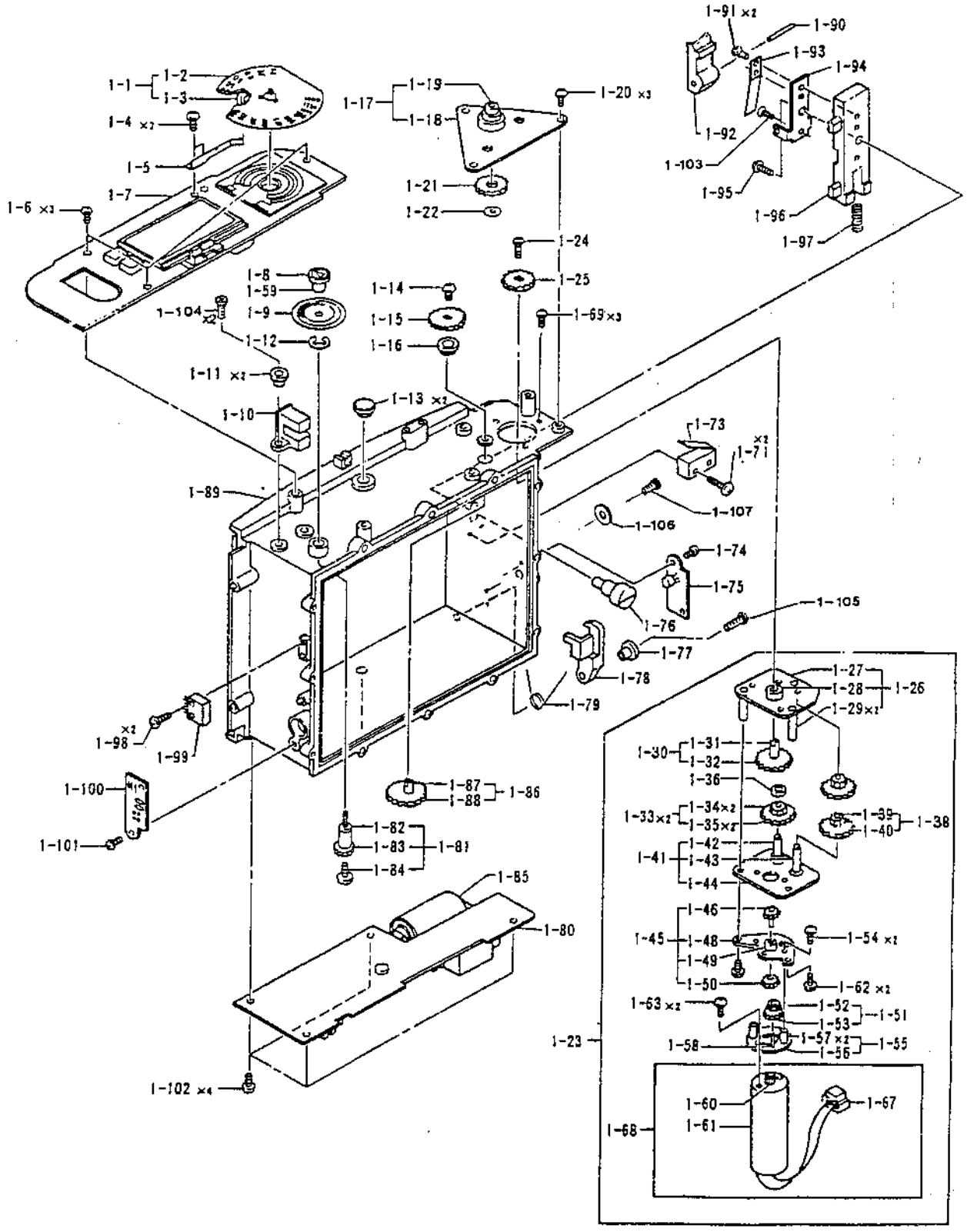


2. FUJI GX680 FILM HOLDER (For 120 film)

Ref No.	Part No.	Part Name	Q'ty	Remarks
1-51	34A 4574450	Gear assembly 1-52, 1-53	1	
1-54	110M 170253M	Screw	4	
1-55	46A 4574390	Motor mount assembly	1	
1-58	32B 4575660	Shaft	1	
1-59	58B 4578160	Cap	1	
1-62	110M 170303M	Screw	2	
1-63	110M 170253M	Screw	2	
1-68	95A 4576020	Motor assembly 1-60,1-61,1-65 ~ 1-67	1	
1-69	110M 200353M	Screw	3	
1-71	113M 200803M	Screw	2	
1-73	121A 4581560	Switch assembly	1	
1-74	113M 200351M	Screw	1	
1-75	110A 4581600	Photocoupler assembly	1	
1-76	32B 4582770	Guide shaft	1	
1-77	42B 4577870	Bushing	1	
1-78	47B 4577830	Hook	1	
1-79	50B 4577840	Spring	1	
1-80	110A 4581620	Power supply assembly	1	
1-81	34A 4577380	Counter gear assembly 1-82, 1-83, 1-84	1	
1-82	32B 4578140	Counter shaft	1	
1-83	34B 4579560	Gear	1	
1-84	55B 30721	Screw	1	
1-85	319K 590650	Lithium battery	1	
1-86	34A 4577390	Gear assembly	1	
1-90	32B 4577790	Shaft	1	
1-91	113M 170301N	Screw	2	
1-92	16B 4577810	Knob	1	
1-93	50B 4577800	Leaf spring	1	
1-94	31B 4577780	Shaft holder	1	
1-95	114M 170301M	Screw	2	
1-96	19B 4577770	Key plate	1	
1-97	50B 4579460	Spring	1	
1-98	113M 140403M	Screw	2	

2. FUJI GX680 FILM HOLDER (For 120 film)

Fig. 1

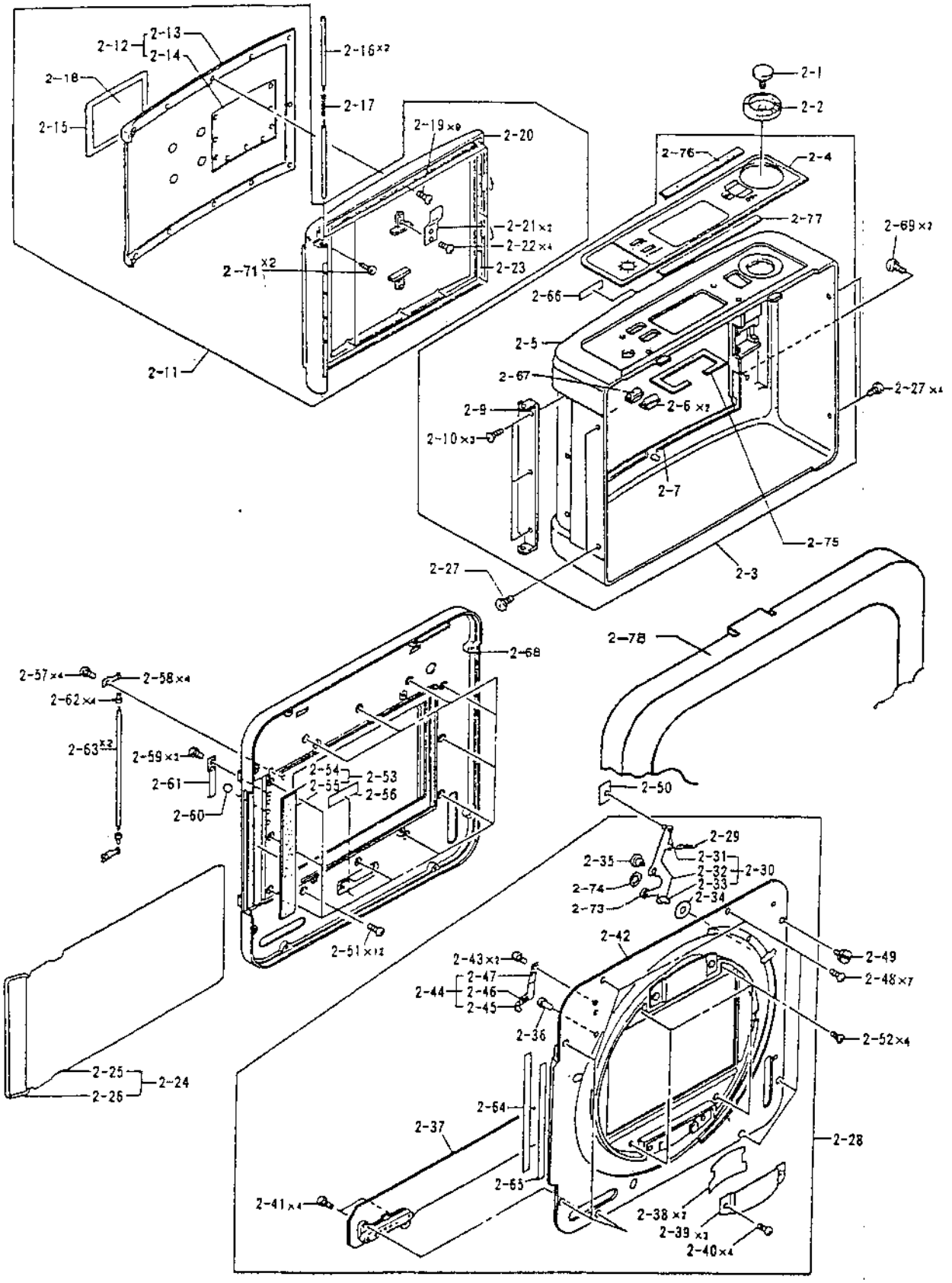


2. FUJI GX680 FILM HOLDER (For 120 film)

Ref No.	Part No.	Part Name	Q'ty	Remarks
1- 99	121A 4581570	Switch assembly	1	
1-100	110A 4581590	Photocoupler assembly	1	
1-101	113M 140403M	Screw	1	
1-102	113M 200401M	Screw	4	
1-103	113M 170301N	Screw	1	
1-104	113M 200551N	Screw	2	
1-105	113M 200753M	Screw	1	
1-106	55B 4579180	Washer	1	
1-107	113M 200303M	Screw	1	

2. FUJI GX680 FILM HOLDER (For 120 film)

Fig. 2

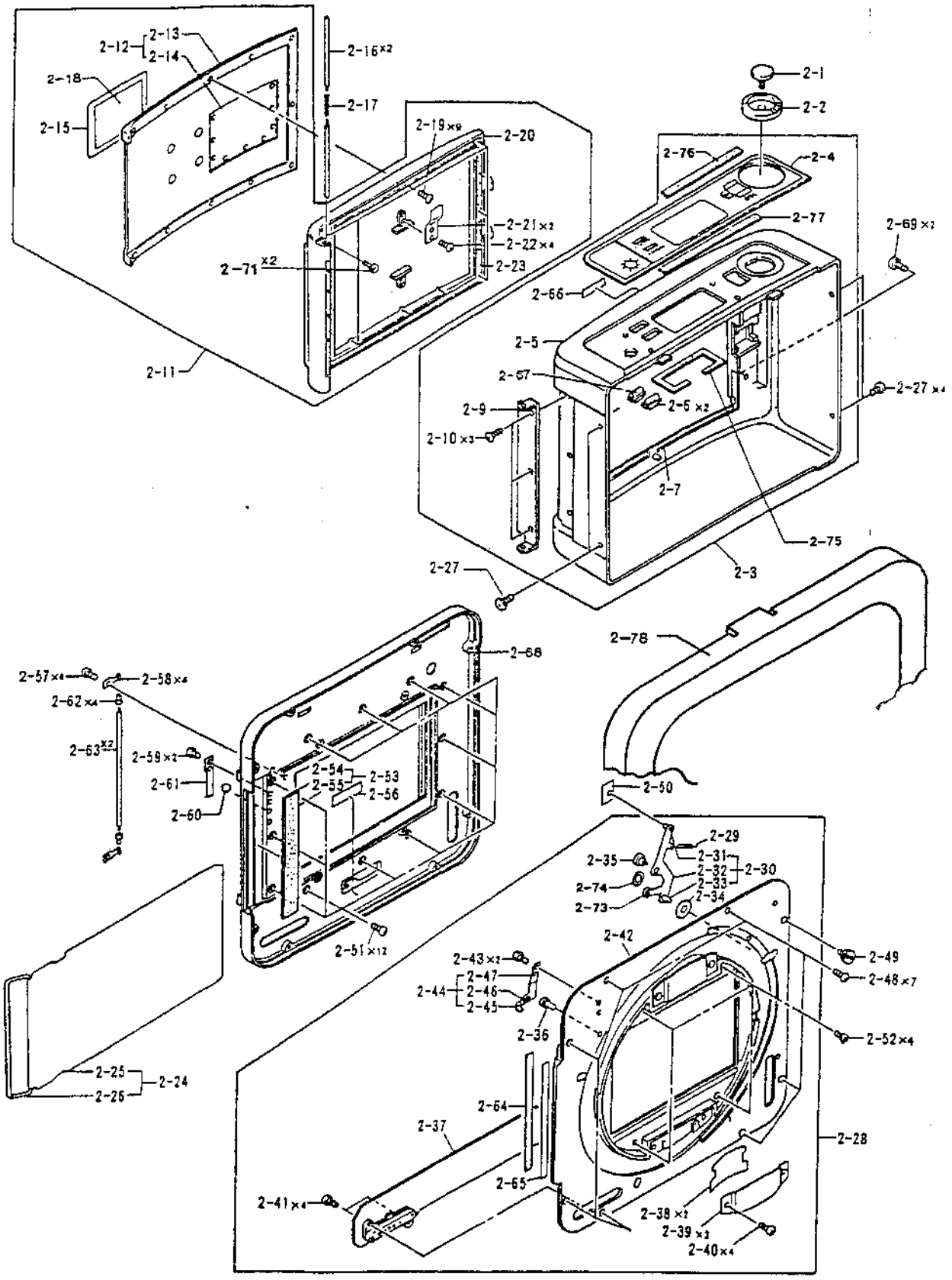


2. FUJI GX680 FILM HOLDER (For 120 film)

Ref No.	Part No.	Part Name		Q'ty	Remarks
2- 1	57B 4577020	Cap		1	
2- 2	23B 4577000	Film speed setting dial		1	
2- 3	303A 4577211	Top cover assembly	2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-66	1	
2- 4	58B 4577530	Top panel		1	
2- 6	16B 4577030	Push-button (H)		1	
2- 9	31B 4578460	Hinge shaft holder		1	
2-10	114M 200351M	Screw		3	
2-11	302A 4578360	Film chamber door assembly	2-12, 2-15, 2-18, 2-19, 2-20, 2-21, 2-22, 2-23	1	
2-12					
2-15					
2-16	32B 4578450	Hinge shaft		2	
2-17	50B 4578470	Spring		1	
2-19	113M 140303M	Screw		9	
2-20					
2-21	50B 4578440	Leaf spring		2	
2-22	113M 170251N	Shaft		4	
2-23	27B 4578480	Light shielder		1	
2-24	27A 4576950	Dark slide	2-25, 2-26	1	
2-27	53B 4578550	Screw		4	
2-28	341A 4577220	Revolver assembly	2-29, 2-30, 2-35, 2-36, 2-37, 2-38, 2-39, 2-40, 2-41, 2-42, 2-43, 2-44, 2-64, 2-65	1	
2-29	50B 4577630	Spring		1	
2-30	47A 4577330	Lock lever assembly	2-31, 2-32, 2-33	1	
2-34	32B 4577680	Light shielder		1	
2-35	32B 4577640	Screw		1	
2-36	17A 4577410	Interlock pin assembly		1	

2. FUJI GX680 FILM HOLDER (For 120 film)

Fig. 2

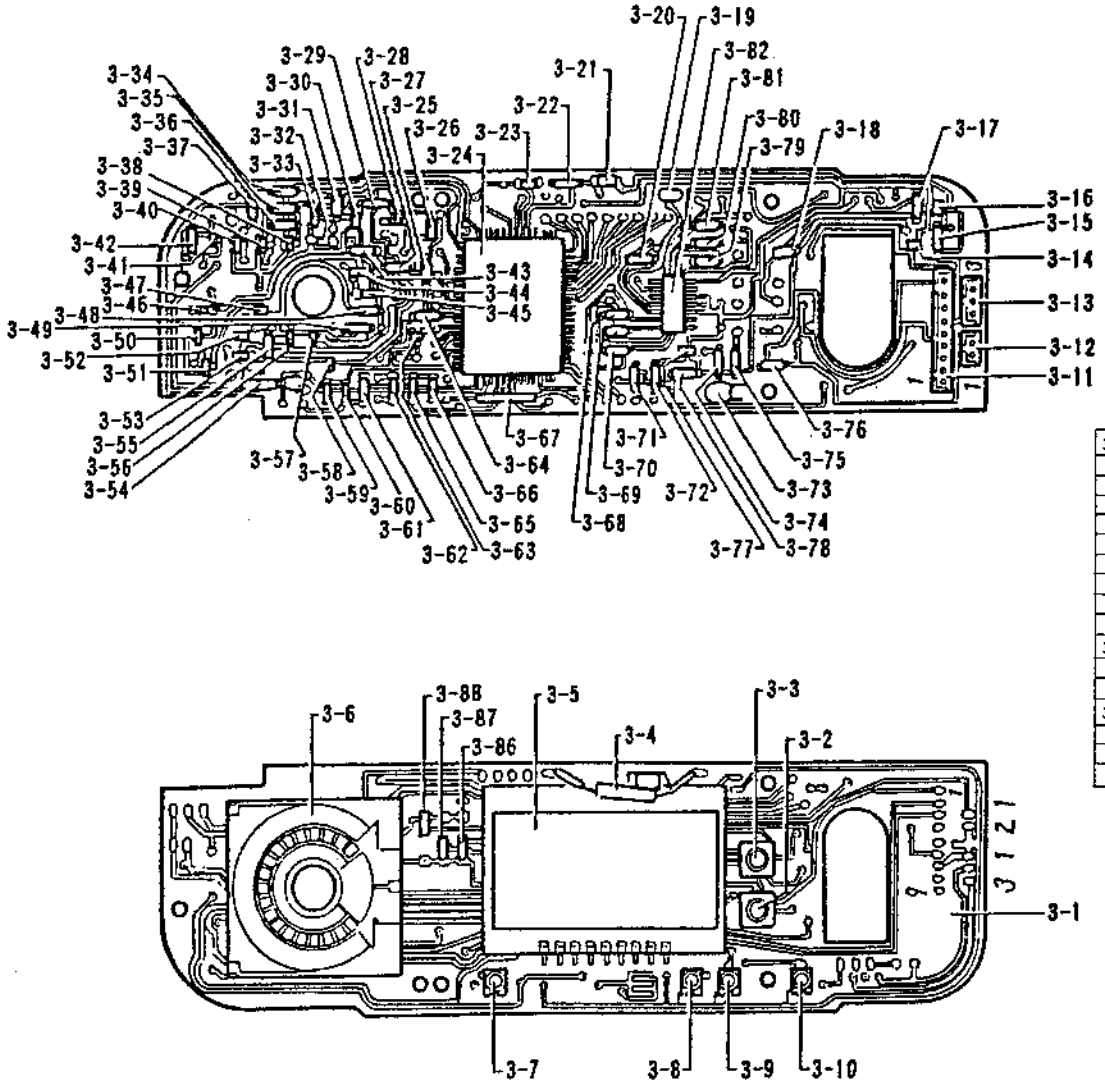


2. FUJI GX680 FILM HOLDER (For 120 film)

Ref No.	Part No.	Part Name	Q'ty	Remarks
2-37	110A 4581580	Contact PCB assembly	1	
2-38	50B 4577560	Leaf spring	2	
2-39	41B 4577550	Holder	2	
2-40	53B 4578580	Screw	4	
2-41	110M 200451M	Screw	4	
2-43	110M 170251M	Screw	2	
2-44	47A 4577340	Lock plate assembly	1	
2-48	53B 4578570	Screw	7	
2-49	87B 4578230	Stopper	1	
2-50	10B 4577670	Plate	1	
2-51	113M 200451M	Screw	12	
2-52	110M 200451M	Screw	4	
2-53	50A 4577350	Shilder/spring assembly 2-54, 2-55	1	
2-57	110M 140121M	Screw	4	
2-58	31B 4578510	Shaft holder	4	
2-59	110M 170251M	Screw	2	
2-60	17B 200M82	Pin	1	
2-61	50B 4577700	Leaf spring	1	
2-62	42B 4578260	Collar	4	
2-63	30B 4577850	Guide roller	2	
2-64	58B 4577090	Index	1	
2-65	95B 4578290	Fine shut	1	
2-66	58B 4577071	Label	1	
2-67	16B 4577040	Button (L)	1	
2-69	53B 4578560	Screw	2	
2-71	113M 140303M	Screw	2	
2-74				
2-75	60B 4578350	Seal	1	
2-76	87B 4579170	Adhesive tape	1	
2-77	87B 4579160	Adhesive tape	1	
2-78	11B 4576981	Cap	1	

3. FUJI GX680 FILM HOLDER (For 220 film)

Fig. 3



3-11 (CN1-2)	
1	LATCH
2	FEED
3	ABLE
4	ISO
5	V (L1)
6	PCV
7	GND
8	V-SV
9	RELAY

3-12 (CN3-2)	
1	SHA
2	SHA-G

3-13 (CN2-2)	
1	GND
2	PTA
3	PTC

3. FUJI GX680 FILM HOLDER (For 220 film)

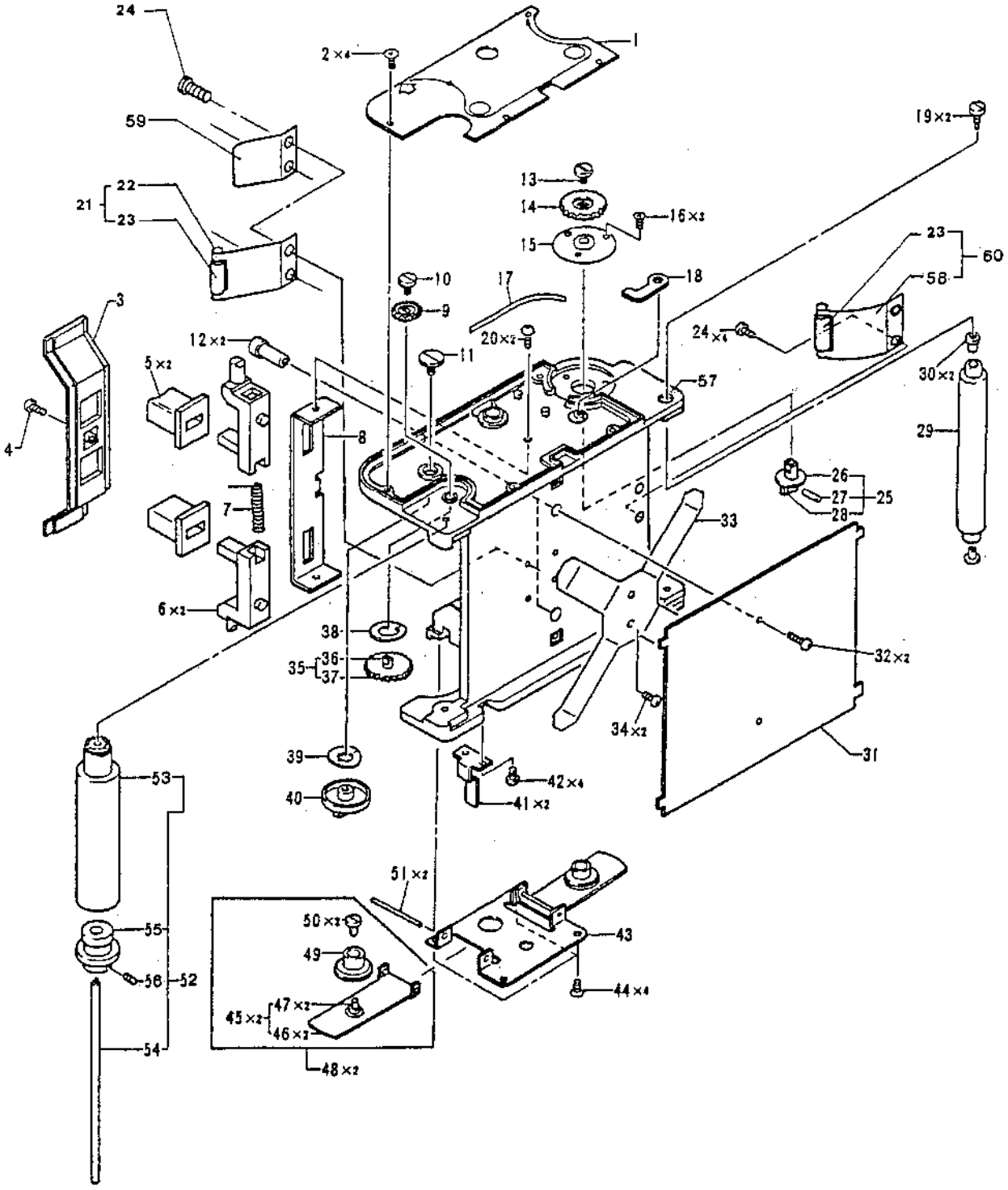
Ref No.	Part No.	Part Name	Q'ty	Remarks
1- 7	110A 4581630	LCD PCB assembly Only position of 3-88 differs.	1	
2-58	31B 4577860	Shaft holder	4	
2-66	58B 4577080	Label	1	
2-68	10B 4577480	PCB	1	
		Except for these parts, all other parts are same as those of the Film Holder (For 120 film).		

PARTS LIST

FOR

4. FUJI GX680 FILM CASSETTE UNIT
5. FUJI GX680 LONG BELLOWS
6. FUJI GX680 STANDARD BELLOWS
7. FUJI GX680 WIDE BELLOWS
8. FUJI GX680 BELLOWS LENS SHADE
9. FUJI GX680 INSTANT FILM HOLDER PA-1
10. FUJI GX680 FOCUSING SCREEN B
11. FUJI GX680 FOCUSING SCREEN A
12. FUJI GX680 POLO FINDER
13. FUJI GX680 ANGLE VIEWFINDER
14. FUJI GX680 LENS HOOD
15. FUJI GX680 VIEWFINDER HOOD UNIT
16. FUJI GX680 LENS BOARD ADAPTOR
17. FUJI GX680 DIOPTRIC ADJUSTER
18. FUJI GX680 REMOTE RELEASE
19. FUJI GX680 EXTENTION RAIL (KA314A)
20. FUJI GX680 BATTERY PACK

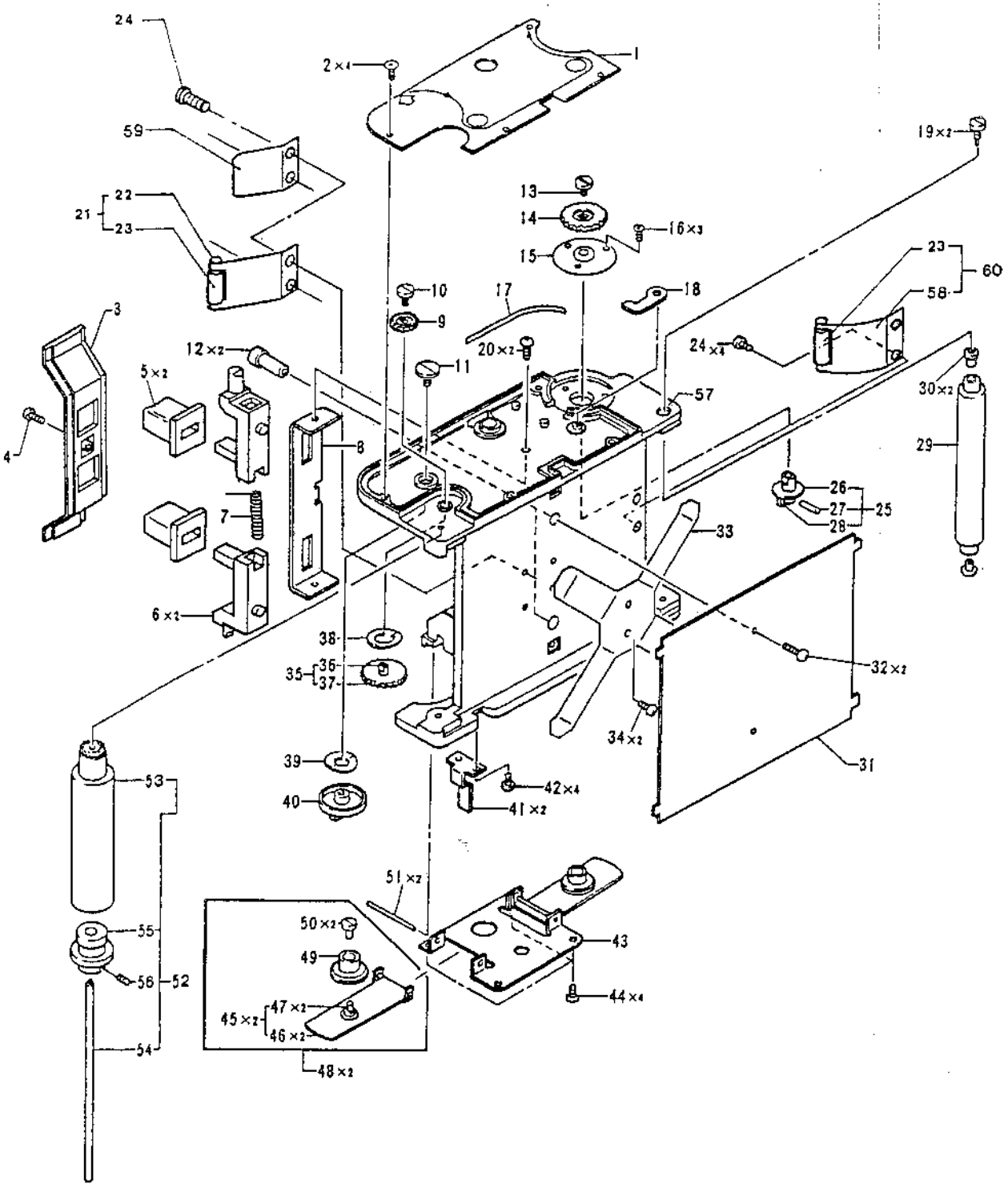
4. FUJI GX680 FILM CASSETTE UNIT



4. FUJI GX680 FILM CASSETTE UNIT

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	58B 4579430	Top cover	1	
2	53B 4579830	Screw	4	
3	11B 4579410	Lock cover	1	
4	53B 4579840	Screw	2	
5	41B 4579760	Knob	2	
6	17B 4579440	Connector	2	
7	50B 4579460	Spring	1	
8	30B 4579420	Guide plate	1	
9	34B 4579560	Gear	1	
10	53B 80721	Screw	1	
11	53B 4579690	Screw	1	
12	32B 4579600	Guide shaft	2	
13	53B 4579750	Screw	1	
14	34B 4579710	Gear	1	
15	31B 4579450	Shaft holder	1	
16	114M 170301M	Screw	3	
17	50B 4579820	Leaf spring	1	
18	45B 4579800	Ratchet	1	
19	31D 4579780	Screw	2	
20	53B 4579840	Screw	2	
21	50A 4579300	Leaf spring assembly 22, 23	1	
22				
23				
24	113M 200401N	Screw	4	
25	32A 4579290	Take-up shaft assembly 26, 27, 28	1	
26				
27				
28				
29	34B 4579590	Roller	1	
30	12B 4579580	Collar	2	
31	44B 4579620	Pressure plate	1	
32	53B 4578580	Screw	2	

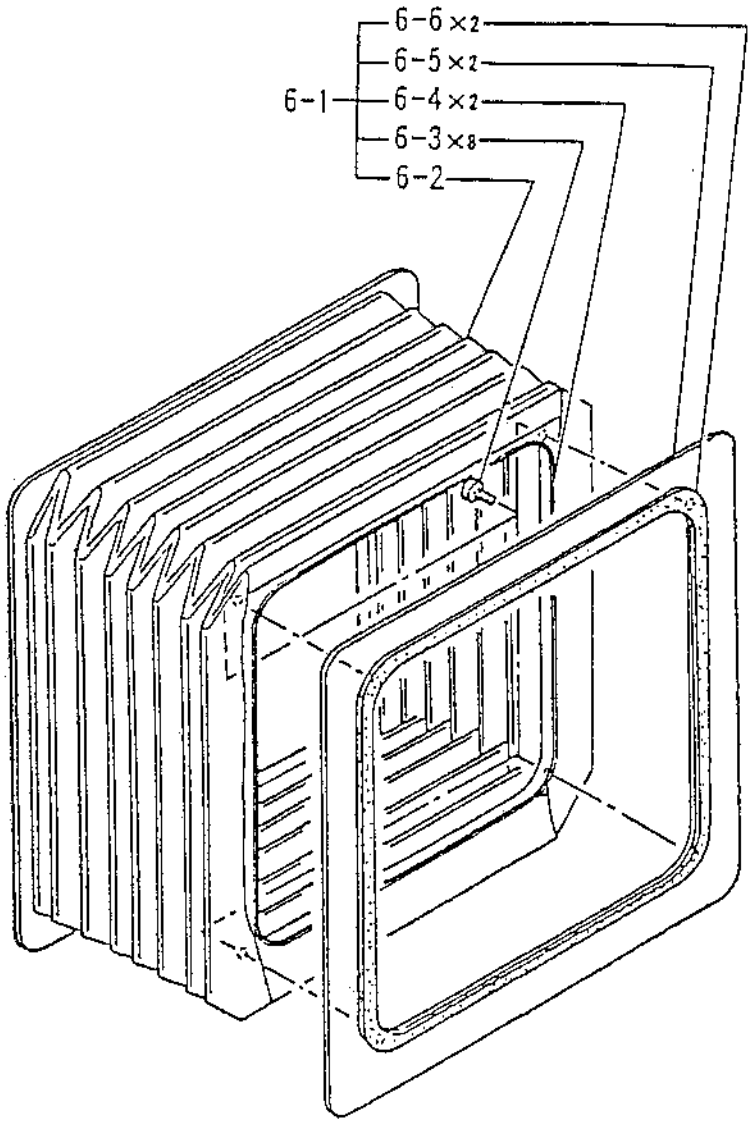
4. FUJI GX680 FILM CASSETTE UNIT



4. FUJI GX680 FILM CASSETTE UNIT

Ref No.	Part No.	Part Name	Q'ty	Remarks
33	50B 4579610	Leaf spring	1	
34	113N 200401N	Screw	2	
35	34A 4579270	Idle gear assembly 35, 36	1	
38	55B 4579860	Spring washer	1	
39	55B 4579700	Spring washer	1	
40	32B 4579680	Spool shaft	1	
41	50B 4579640	Leaf spring	2	
42	113M 170301M	Screw	4	
43	31B 4579650	Shaft holder	1	
44	53B 4579830	Screw	4	
45	46A 4579340	Shaft assembly 47, 46	2	
48	46A 4579320	Shaft holder assembly	2	
50	53B 4579490	Screw	2	
51	32B 4579670	Shaft	2	
52	65A 4579280	Exposure counter drum assembly	1	
53	65B 4579520	Exposure counter drum	1	
54	32B 4579510	Drum shaft	1	
55	37B 4579530	Roller	1	
56	120M 170201M	Screw	1	
57	10B 4579401	Main frame	1	
58				
59	50B 4579891	Holder	1	
60	50A 4579330	Leaf spring assembly 23, 58	1	

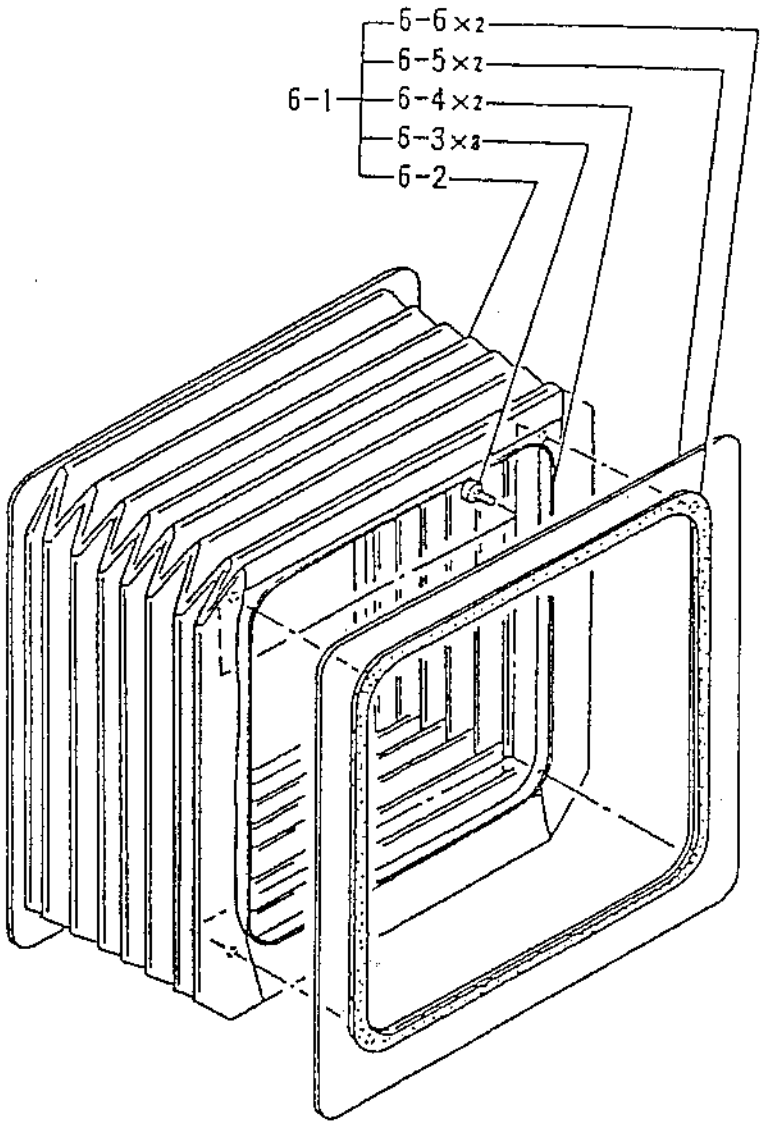
5. FUJI GX680 LONG BELLOWS



5. FUJI GX680 LONG BELLOWS

Ref No.	Part No.	Part Name	Q'ty	Remarks
6- 1	100A 12158A01	Long bellows assembly 6-2, 6-3, 6-4, 6-5, 6-6	1	
6- 2				
6- 3	111M 170221S	Screw	8	
6- 4				
6- 5				
6- 6	27B 4580030	Moquette	2	

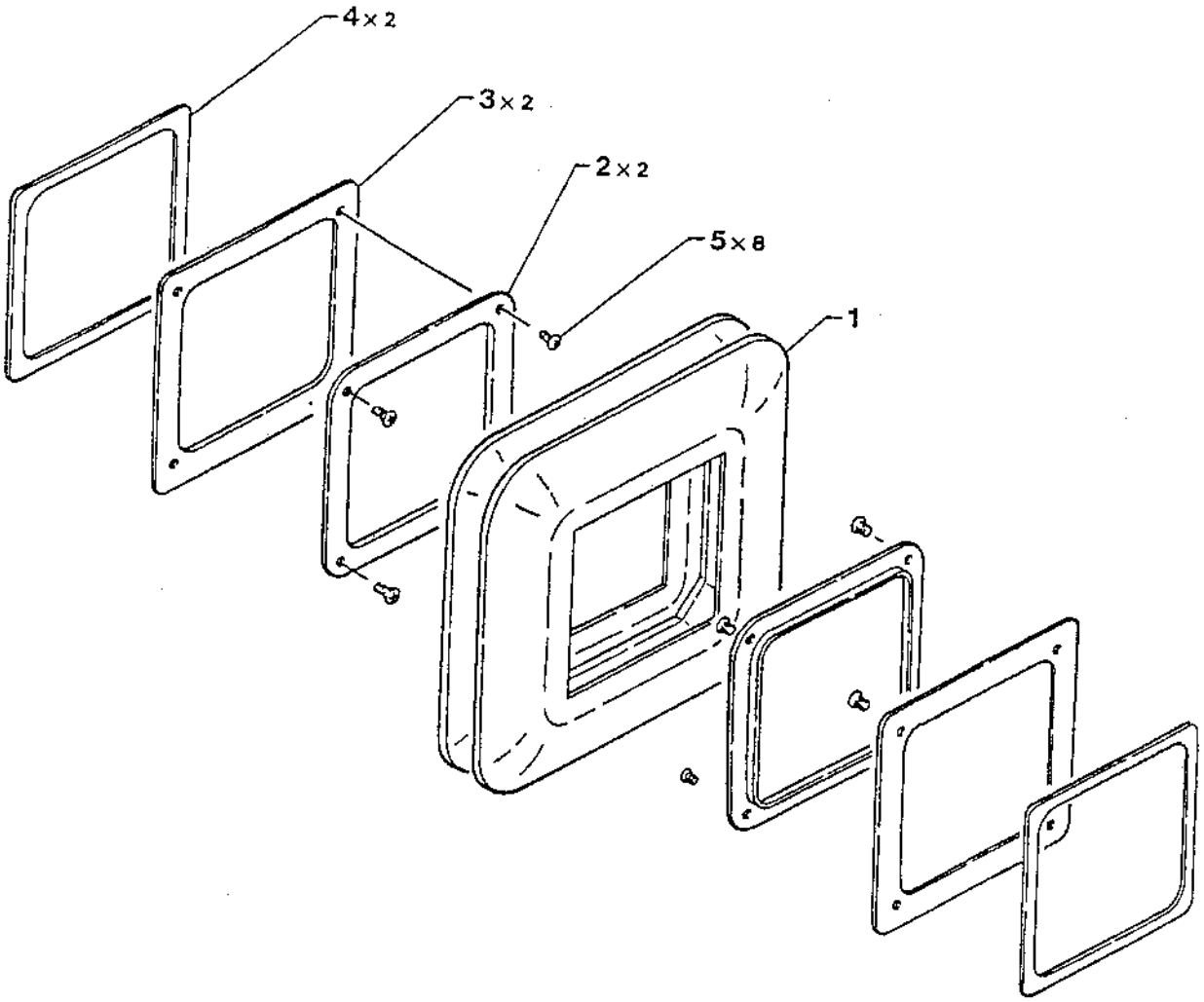
6. FUJI GX680 STANDARD BELLOWS



6. FUJI GX680 STANDARD BELLOWS

Ref No.	Part No.	Part Name	Q'ty	Remarks
6-1	100A 12154A01	Standard bellows assembly 6-2 ~ 6-6	1	
6-3	111M 170221S	Screw	8	
6-6	27B 4580030	Moquette	2	

7. FUJI GX680 WIDE BELLOWS

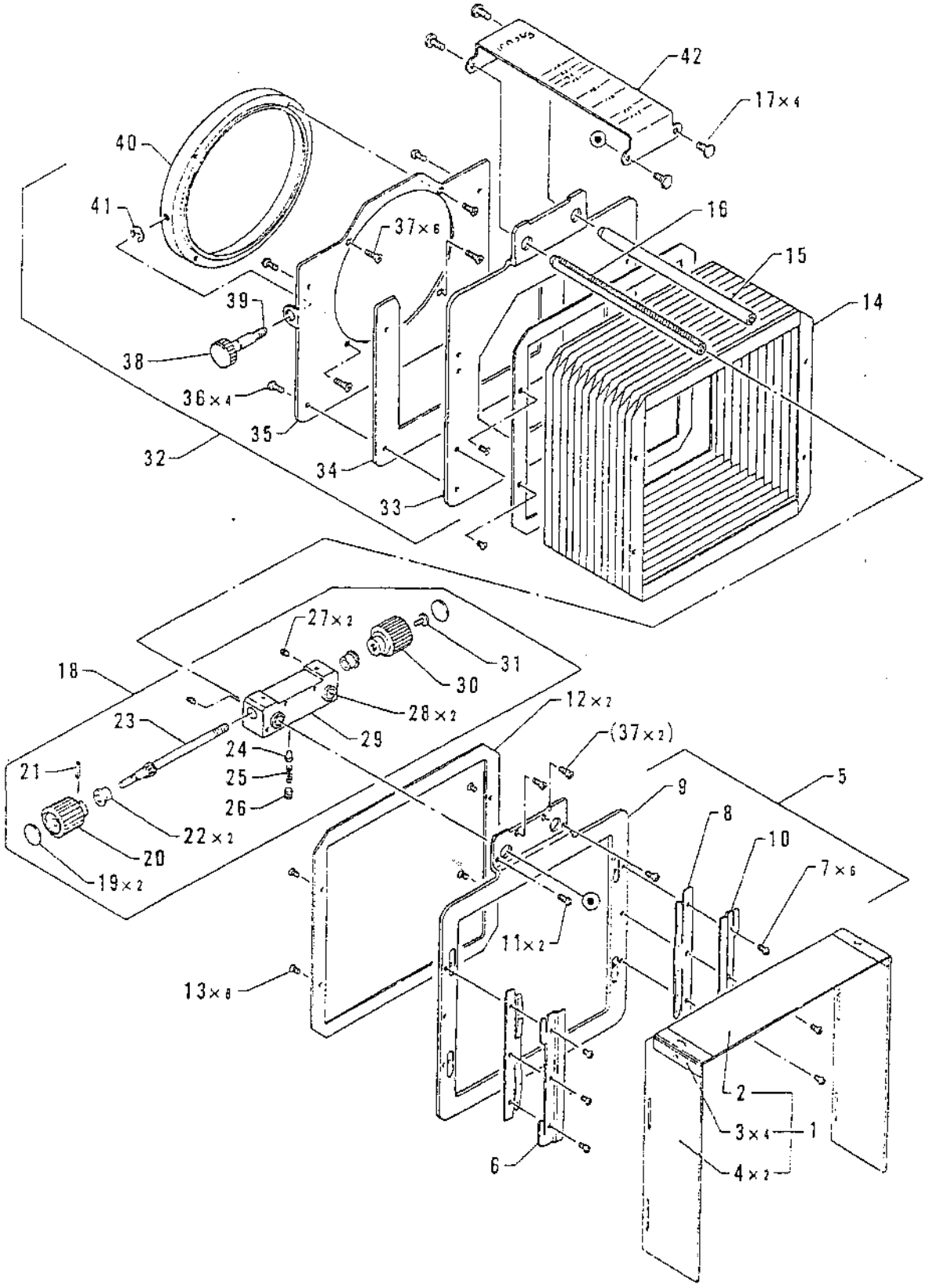


7. FUJI GX680 WIDE BELLOWS

Ref No.	Part No.	Part Name	Q'ty	Remarks
4	27B 4580031	Moquette	2	
5	111M 170221S	Screw	8	

Except for wide bellows, all other parts are same as those of the standard bellows.

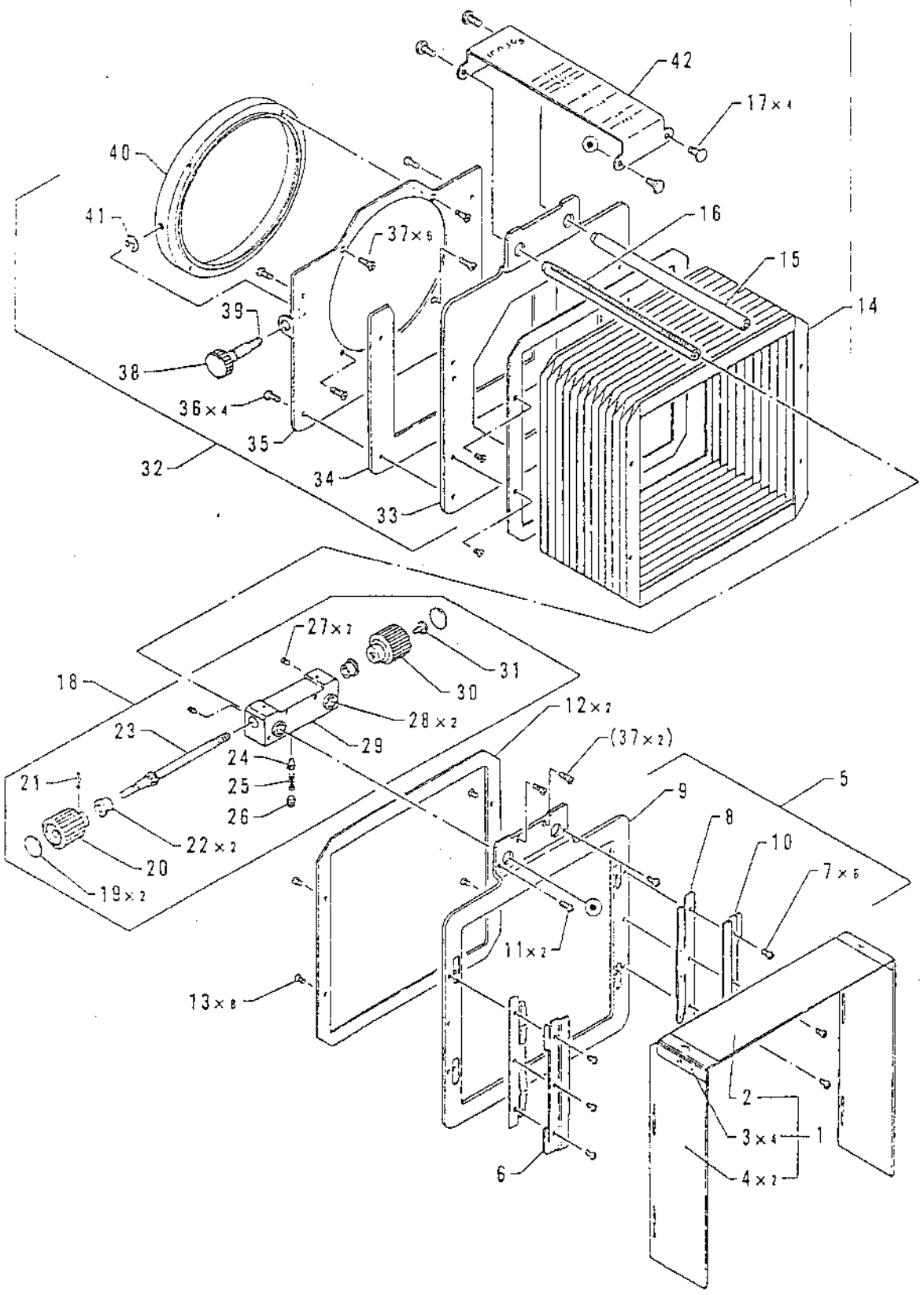
8. FUJI GX680 BELLOWS LENS SHADE



8. FUJI GX680 BELLOWS LENS SHADE

Ref No.	Part No.	Part Name		Q'ty	Remarks
1	79A4656360	Hooldassembly	2, 3^{x4}, 4^{x2}	1	
2					
3					
4					
5	79A4656390	Front frame assembly	6, 7^{x6}, 8^{x2}, 9, 10	1	
6	85B4656420	Holder II		1	
7	53B4656440	Screw		6	
8	50B4656430	Leaf spring		2	
9	79B4656400	Plate III		1	
10	85B4656410	Holder I		1	
11	53B4656710	Screw		2	
12	79B4656690	Bellows holder		2	
13	53B4656700	Screw		8	
14	27B4656680	Bellows		1	
15	14B4656650	Bar		1	
16	34B4656640	Hook		1	
17	53B4656660	Screw		4	
18	10A4656380	Gear box assembly	19^{x2}, 20, 21, 22^{x2}, 23, 24, 25, 26, 27^{x2}, 28^{x2}, 29, 30, 31	1	
19	59B4656720	Leather		2	
20	16B4656500	Knob		1	
21	182M160901T	Spring pin		1	
22	31B4656470	Collar		2	
23	32B4656480	Gear shaft		1	
25	50B4656540	Spring		1	
26	53B4656530	Screw		1	
27	120M200251M	Set screw		2	
29	10B4656460	Gear box		1	
30	16B4651510	Lock knob		1	
31	53B4656520	Screw		1	
32	79A4656370	Rear frame assembly	33, 34, 35, 36^{x4}, 37^{x6}, 38, 39, 40, 41	1	

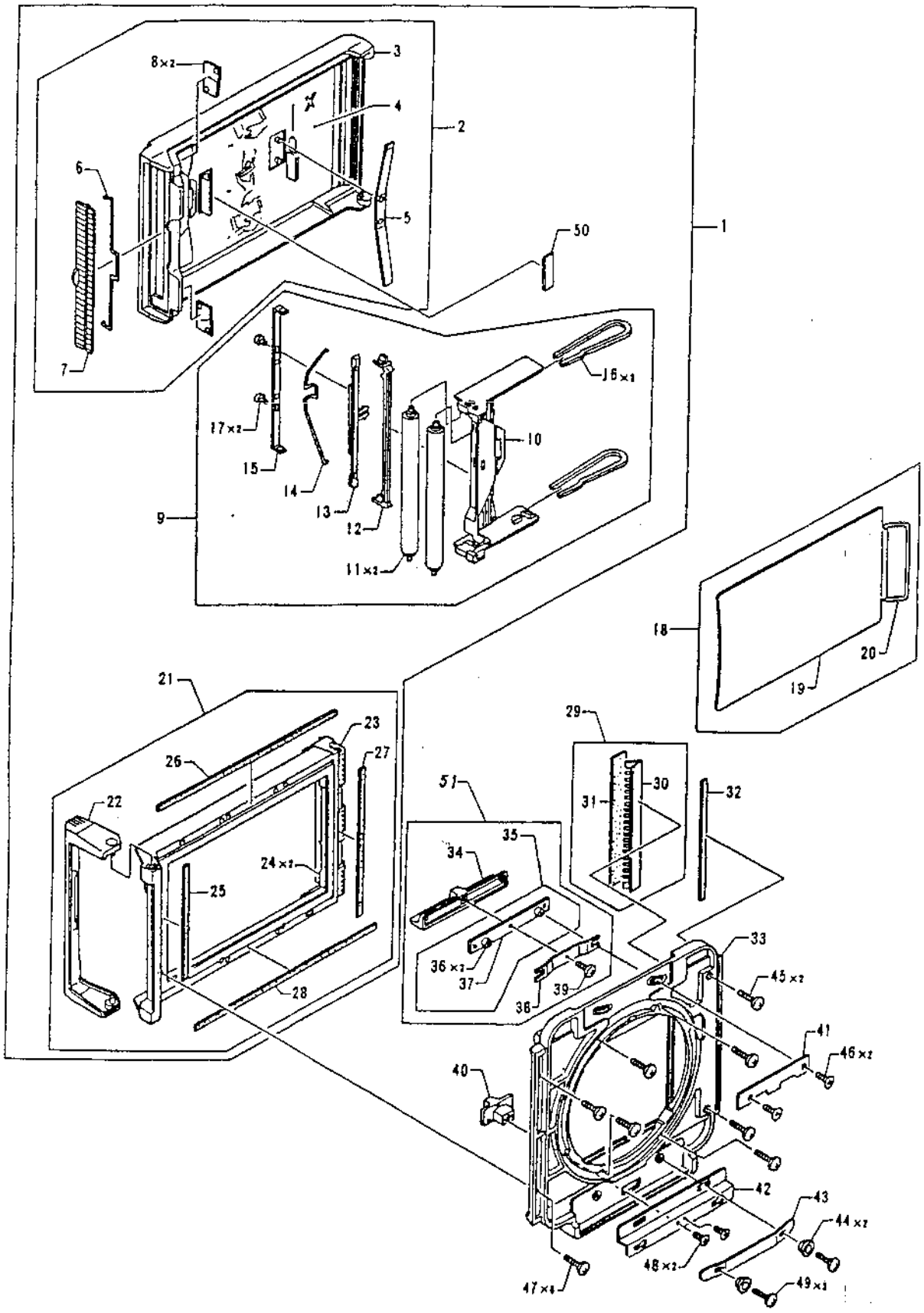
8. FUJI GX680 BELLOWS LENS SHADE



8. FUJI GX680 BELLOWS LENS SHADE

Ref No.	Part No.	Part Name	Q'ty	Remarks
33	79B4656550	Plate II	1	
34	85B4656590	Spacer	1	
35	79B4656560	Plate I	1	
36	53B4656610	Screw	4	
37	53B4656620	Screw	6	
38	53B4656580	Lock screw	1	
39	17B4656600	Pin	1	
40	23B4656570	Ring	1	
41	191M030Q	E-clip	1	
42	58B4656670	Scale plate	1	

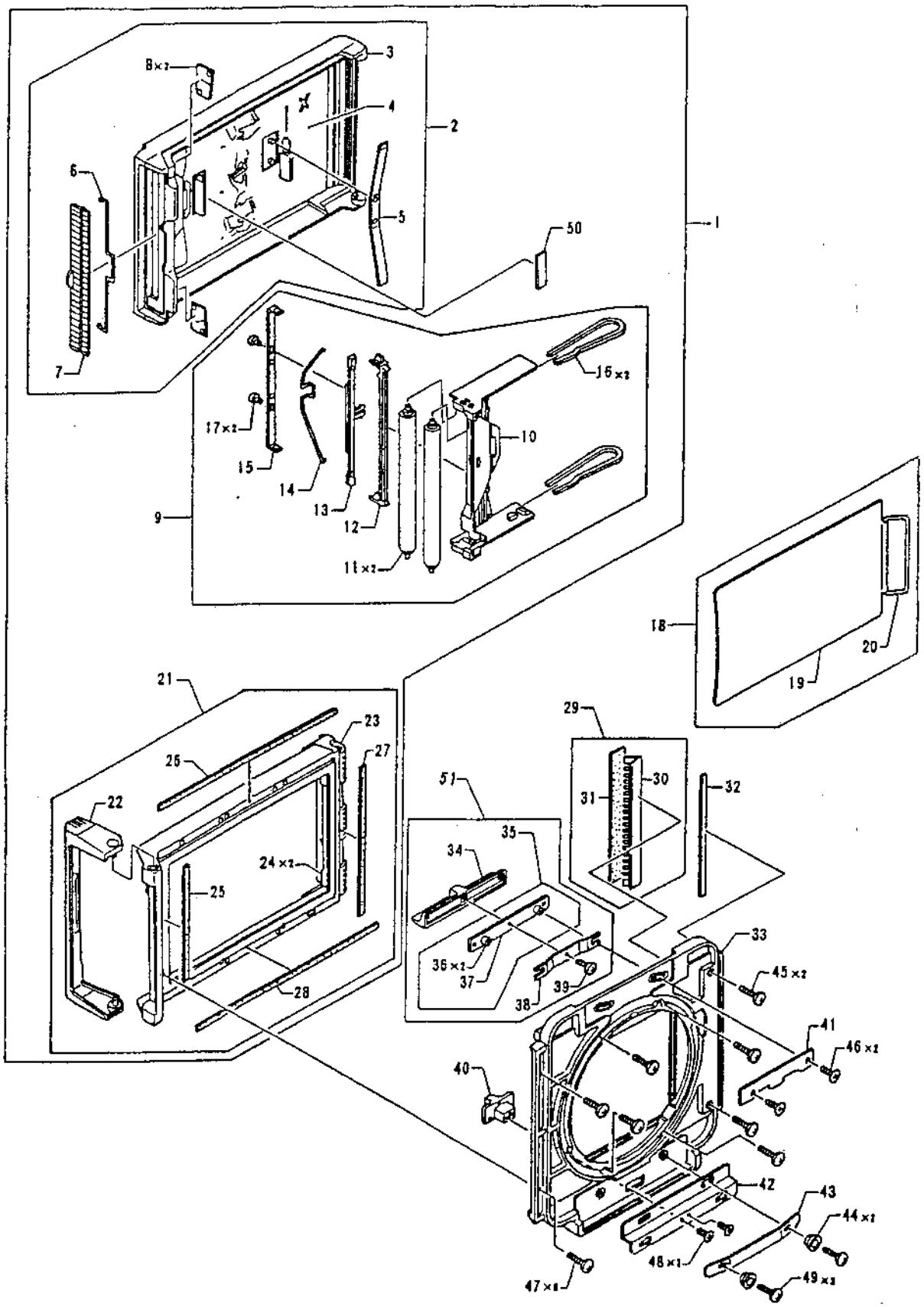
9. FUJI GX680 INSTANT FILM HOLDER PA-1



9. FUJI GX680 INSTANT FILM HOLDER PA-1

Ref No.	Part No.	Part Name		Q'ty	Remarks
1	100A 1181A00	Instant film holder assembly PA-1	2, 9, 21	1	KG17A
2	302A 4177550	Film chamber door assembly		1	
4	58B 4177490	Instruction label		1	
5	50B 4177430	Leaf spring		1	
6	50B 4018041	Wire spring		1	
7	82B 4177410	Light shielder		1	
8	82B 4177450	Flap		2	
9	333A 4177610	Roller block assembly	10, 11, 12, 13, 14, 15, 16, 17	1	
10	28B 4017944	Roller frame		1	
11	30B 4177447	Roller		2	
12	32B 4017921	Top hook		1	
13	82B 4017902	Bottom hook		1	
14	50B 4177473	Wire wpring		1	
15	50B 4177480	Leaf spring		1	
16	50B 4177425	U-spring		2	
17	113M 1702535N	Screw		2	
18	27A 4580830	Dark slide assembly	19, 20	1	
21	301A 4177530	Main frame assembly	22, 23, 24, 25, 26, 27, 28	1	
22	82B 4017893	Catch		1	
23	10B 4177393	Main frame		1	
24	51B 4018030	Neoprene sponge		1	
25	27B 4177502	Light shielder A		1	
26	27B 4177513	Light shielder B		1	
27	27B 4324012	Light shielder		1	
28	27B 4177520	Light shielder C		1	
29	50A 4580820	Light shielding spring assembly	30, 31	1	
30					
31					
32	581B 4581030	Name plate		1	
33	10B 4580903	Adapter body		1	

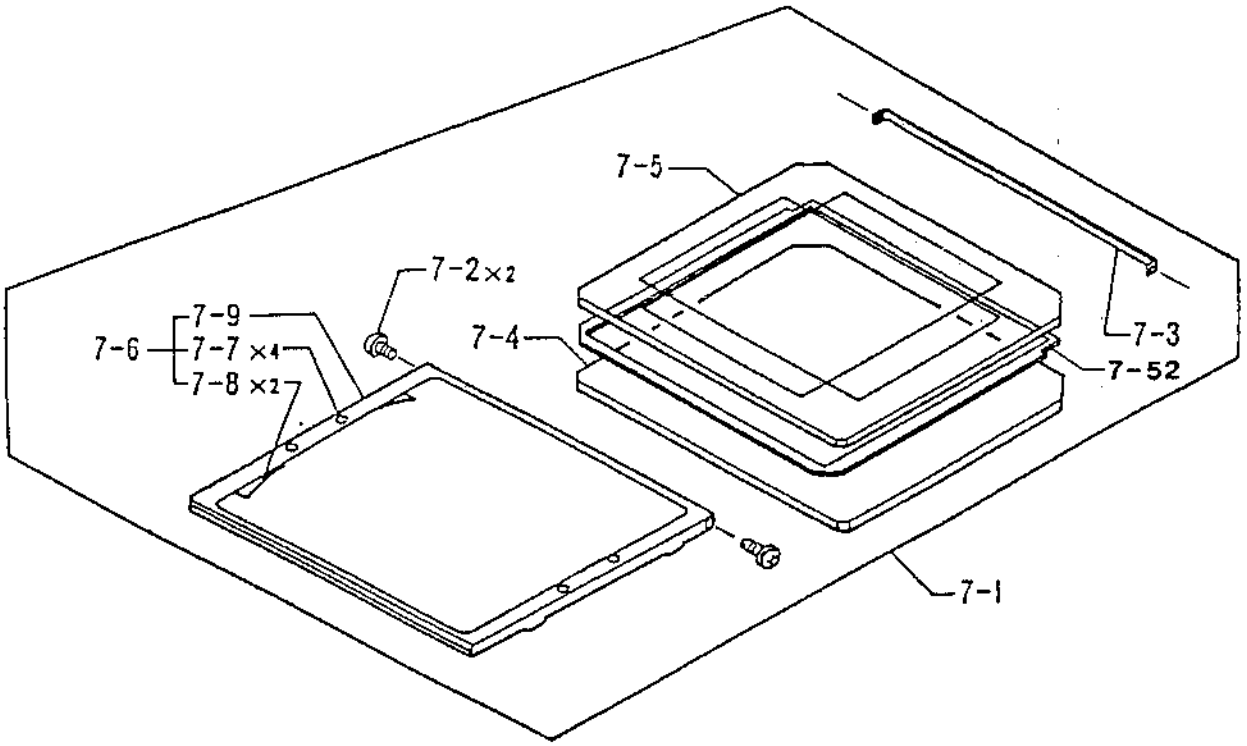
9. FUJI GX680 INSTANT FILM HOLDER PA-1



9. FUJI GX680 INSTANT FILM HOLDER PA-1

Ref No.	Part No.	Part Name	Q'ty	Remarks
34	16B 4580991	Knob	1	
35	19A 4580800	Interlock plate assembly 36, 37	1	
36				
37				
38	50B 4580970	Leaf spring	1	
39	113M 4200401N	Screw	1	
40	16B 4580941	Knob	1	
41	19B 4580960	Lock plate	1	
42	19B 4580930	Hook	1	
43	50B 4580920	Leaf spring	1	
44	30B 4580911	Guide	2	
45	142M 230952M	Screw	2	
46	111M 200301N	Screw	2	
47	142M 203802M	Screw	6	
48	114M 170351N	Screw	2	
49	113M 200551N	Screw	2	
51	19A 4580810	Knob assembly 34, 35, 38, 39	1	

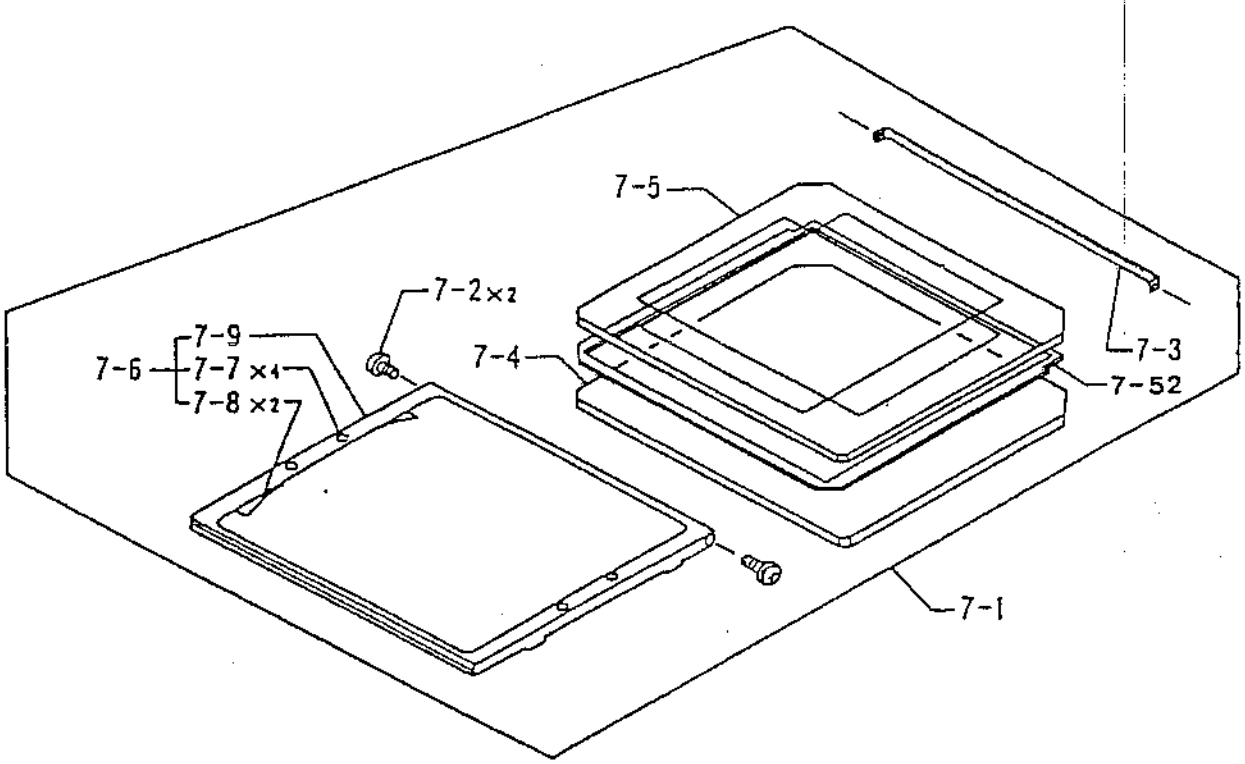
10. FUJI GX680 FOCUSING SCREEN B



10. FUJI GX680 FOCUSING SCREEN B

Ref No.	Part No.	Part Name	Q'ty	Remarks
7- 1	100A 12147A02	Focusing screen assembly B 7-2, 7-3, 7-4, 7-5, 7-6	1	
7- 2	53B 4580000	Screw	2	
7- 3	10B 4579950	Frame-II	1	
7- 4	5B 4586660	Ground glass	1	
7- 5	6B 4579990	Reticle	1	
7- 6	10A 4580010	Frame assembly 7-7, 7-8, 7-9	1	
7-52	24B 4580070	Spacer	1	
	NOTE:			
	Except for the ground glass (7-4), all other parts are same as those of the focusing screen A (standard)			

11. FUJI GX680 FOCUSING SCREEN A



11. FUJI GX680 FOCUSING SCREEN A

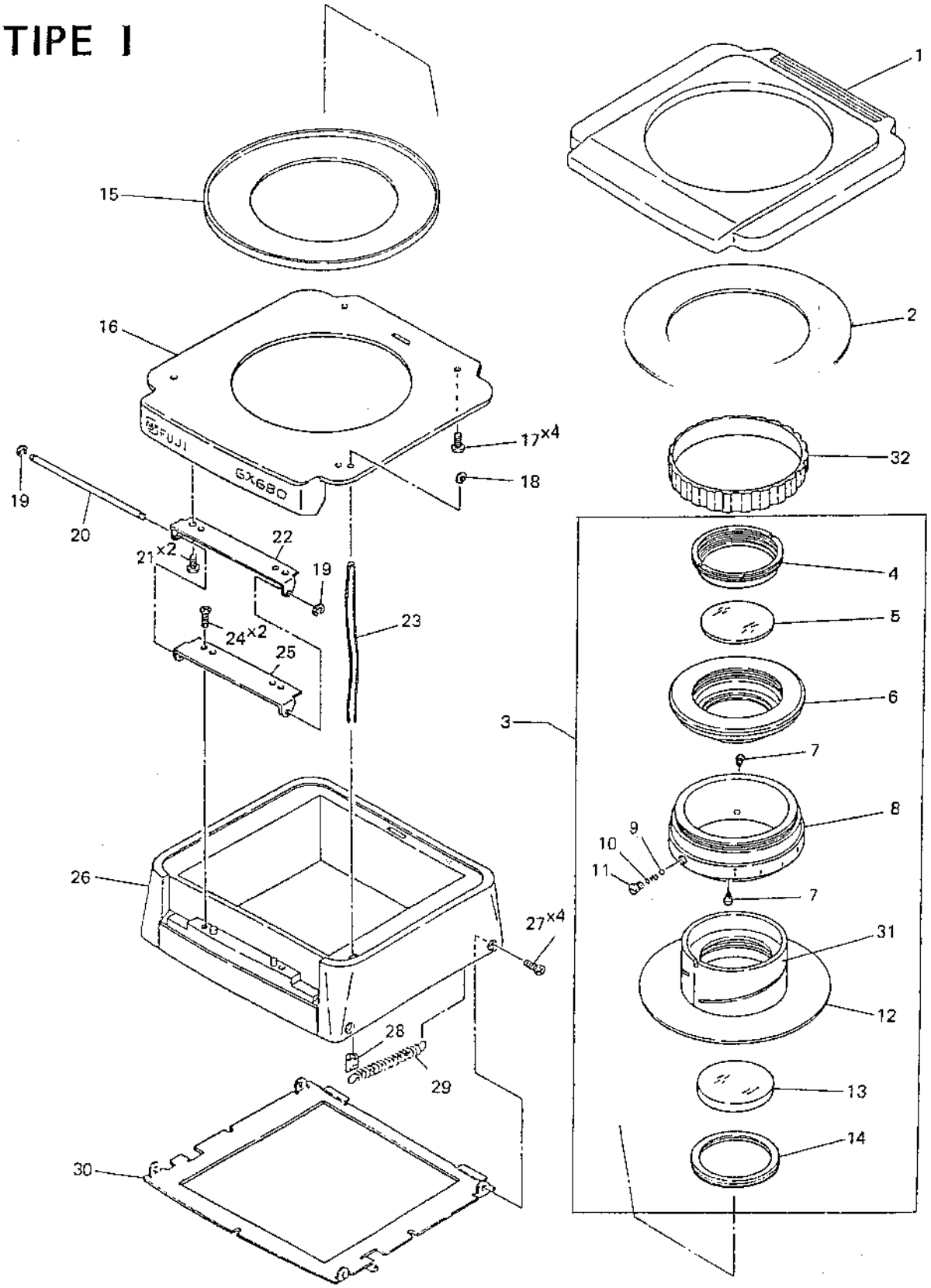
Ref No.	Part No.	Part Name	Q'ty	Remarks
7-1	100A 12146A02	Focusing screen assembly A 7-2 ~ 7-6	1	
7-2	53B 4580000	Screw	2	
7-3	10B 4579950	Frame II	1	
7-4	5B 4586650	Ground glass	1	
7-5	6B 4579990	Reticle	1	
7-6	10A 4580010	Frame assembly II 7-7 ~ 7-9	1	
7-52	24B 4580070	Spacer	1	

NOTE :

Except for the ground glass, other parts are used commonly with focusing screen assembly B (standard).

12. FUJI GX680 POLO FINDER

TIPE I



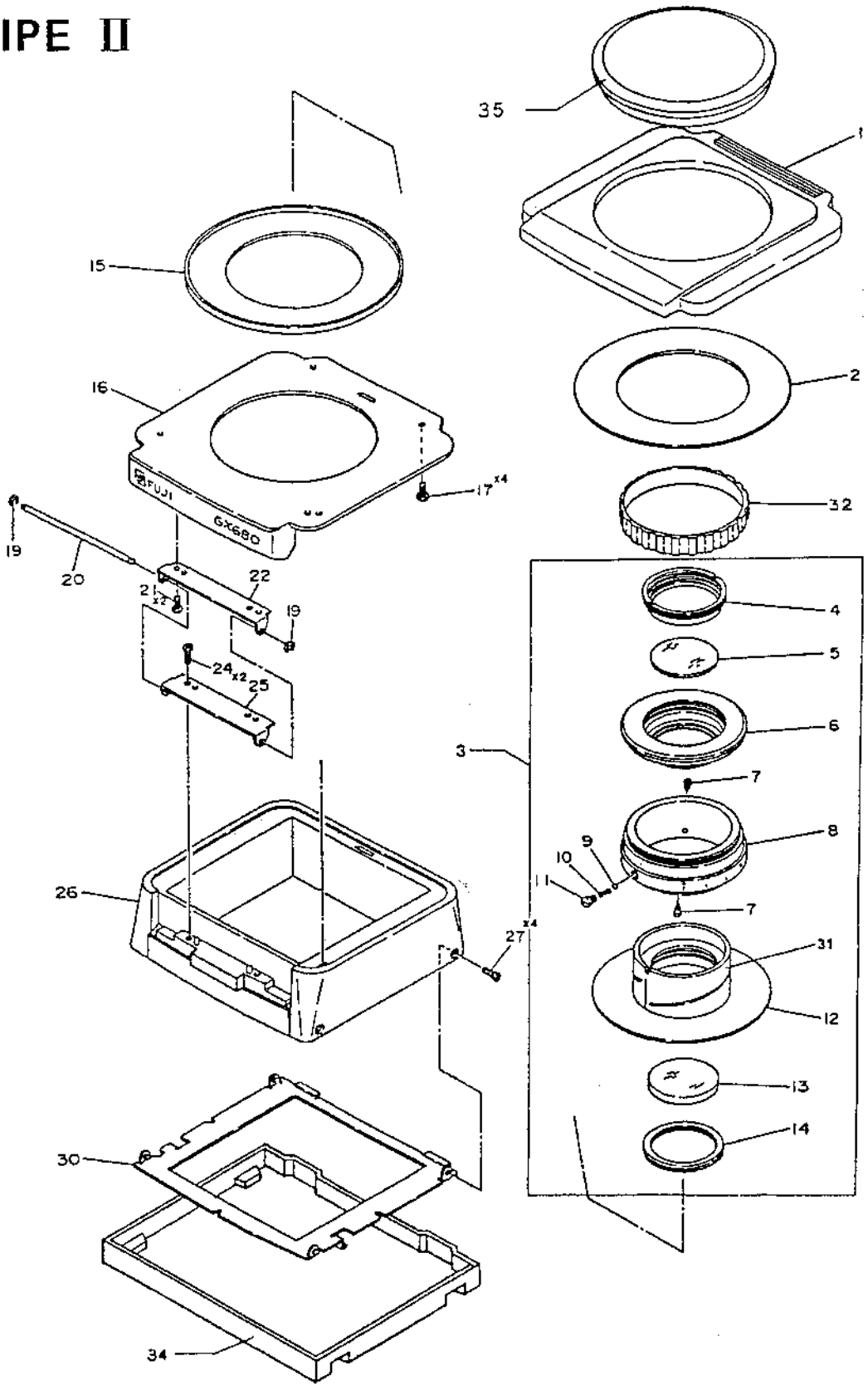
12. FUJI GX680 POLO FINDER

TIPE I

Ref No.	Part No.	Part Name	Q'ty	Remarks	
1	11B4658180	Top cover	1		
2	29B4658220	Sliding cover	1		
3	324A4658130	Lens assembly	1		
4	23B4658310	Holding ring A	1		
5	1B5555640	Lens G2	1		
6	23B4658320	Top ring	1		
7	53B4658270	Set screw			
8	21B4658250	Lens frame B	1		
9	200M20	Steel ball	1		
10	50B4658350	[illegible]	1		
11	[illegible]	Screw			
12	[illegible]	Sliding plate	1		
13	1B5555630	Lens G1	1		
14	23B4658260	Holding ring B	1		
15	29B4658210	Sliding frame	1		
16	11B4658170	Bottom cover	1		
17	113M200502M	Screw	4		
18	55B4658420	Washer	1		
19	191M012T	E-clip	2		
20	32B4658280	Shaft	1		
21	113M200502M	Screw	2		
22	31B4658200	Shaft holder B	1		
23	41B4658290	Stay	1		
24	113M200502M	Screw	2		
25	31B4658190	Shaft holder A	1		
26	10B4658160	Main body	1		
27	53B4580370	Screw	4		
28	87B4658360	Stopper	1		
29	50B4658300	Spring	1		
30	46B4580170	Frame	1		
31	21B4658240	Lens frame A	1		
32	59B4658330	Knurled ring	1		

12. FUJI GX680 POLO FINDER

TIPE II

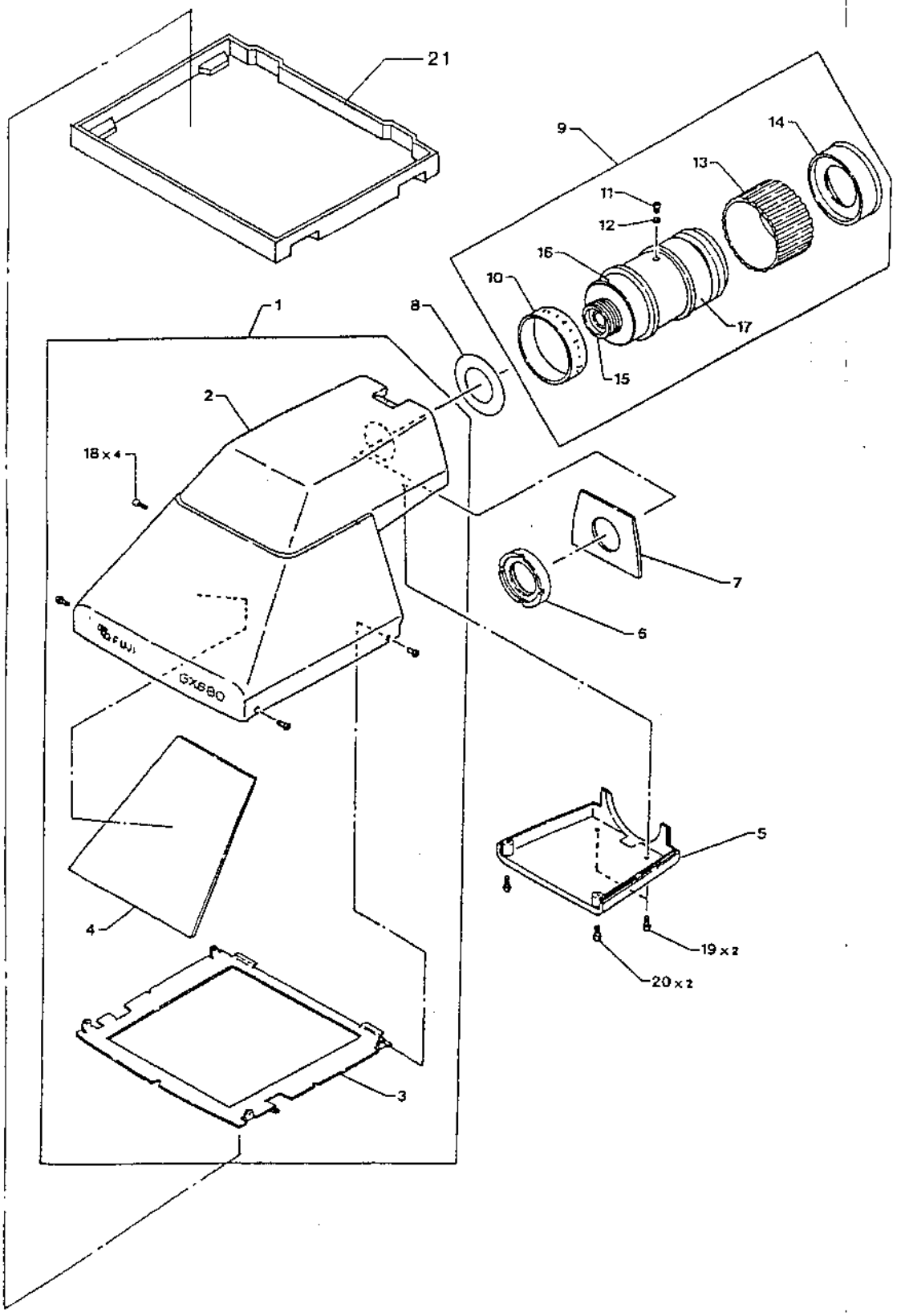


12. FUJI GX680 POLO FINDER

TIPE II

Ref No.	Part No.	Part Name	Q'ty	Remarks	
1	11B4658180	Top cover	1		
2	29B4658220	Sliding cover	1		
3	324A4658130	Lens assembly			
4	23B4658310	Holding ring A	1		
5	1B5555640	Lens G2	1		
6	23B4658320	Top ring	1		
7	53B4658270	Set screw	2		
8	21B4658250	Lens frame B	1		
9	200M20	Steel ball	1		
10	50B4658350	Click spring	1		
11	53B4658340	Screw	1		
12	29B4658230	Sliding plate	1		
13	1B5555630	Lens G1	1		
14	23B4658260	Holding ring B	1		
15	29B4658210	Sliding frame	1		
16	11B4658170	Bottom cover	1		
17	113M200502M	Screw	4		
19	191M012T	E-clip	2		
20	32B4658280	Shaft	1		
21	113M200502M	Screw	2		
22	31B4658200	Shaft holder B	1		
24	113M200502M	Screw	2		
25	31B4658190	Shaft holder A	1		
26	10B4658160	Main body	1		
27	53B4580370	Screw	4		
30	46B4580170	Frame	1		
31	21B4658240	Lens frame A	1		
32	59B4658330	Knurled ring	1		
33	29B4658400	Protector	1		
34	57B4580360	Bottom cap	1		
35	57B4658390	Lens cap	1		

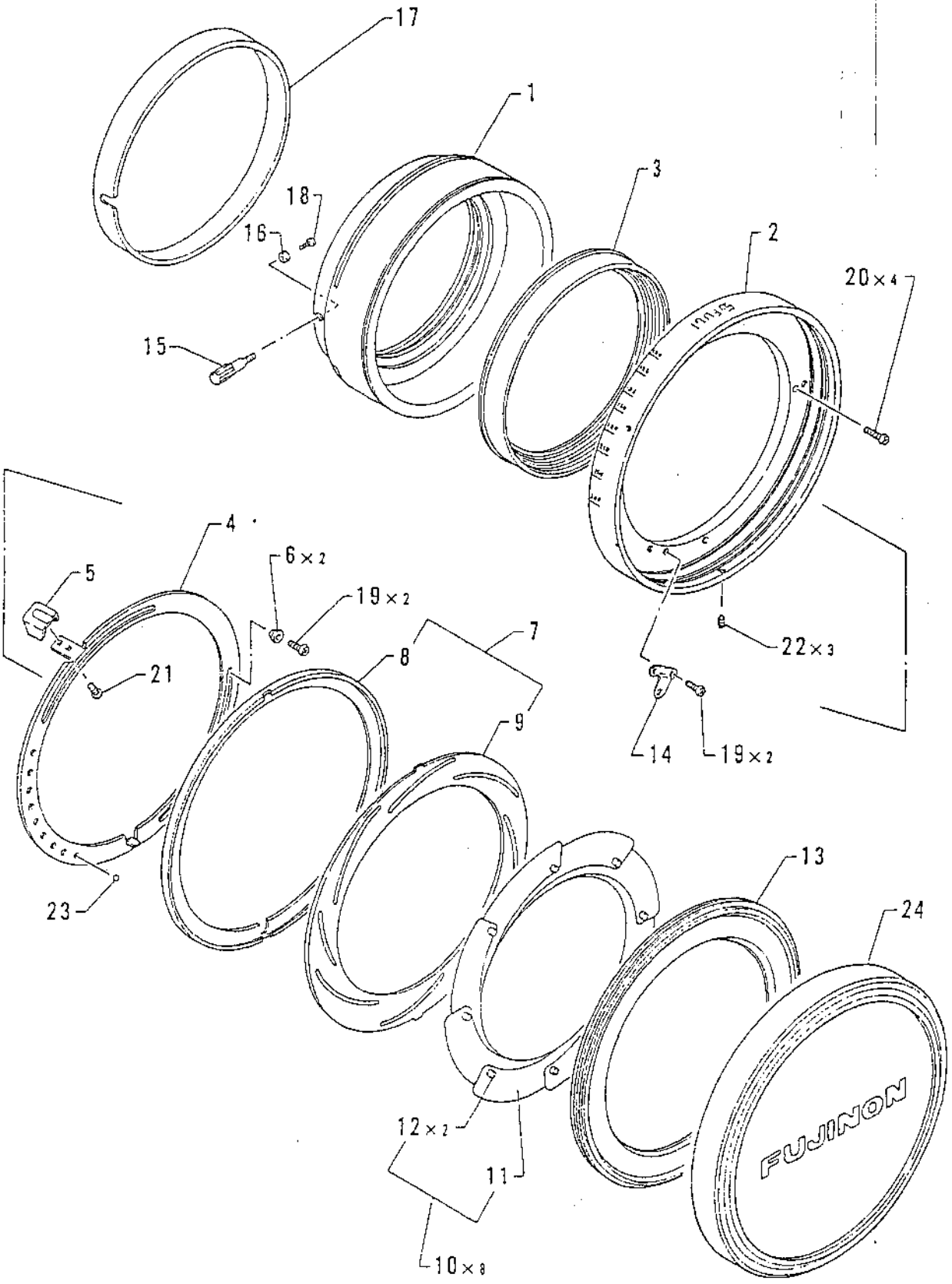
13. FUJI GX680 ANGLE VIEWFINDER



13. FUJI GX680 ANGLE VIEWFINDER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	10A 4580140	Main body assembly 2, 3, 4, 18	1	
3	46B 4587170	Adapter	1	
4	3B 4595540	Mirror	1	
5	11B 4580160	Bottom cover	1	
6	53B 4580350	Hold ring	1	
7	55B 4580340	Spacer	1	
8	55B 4580600	Gasket	1	
9	21A 4580180	Eyepiece lens assembly	1	
10	23B 4580310	Diopter scale ring	1	
11	110M 170251M	Screw	1	
12	30B 4580290	Collar	1	
13	23B 4580320	Dioptric adjuster ring	1	
14	27A 2836101	Eye cup	1	
18	53B 4580370	Screw	4	
19	53B 4580380	Screw	2	
20	113M 170603M	Screw	2	
21	57B 4580362	Bottom cap	1	

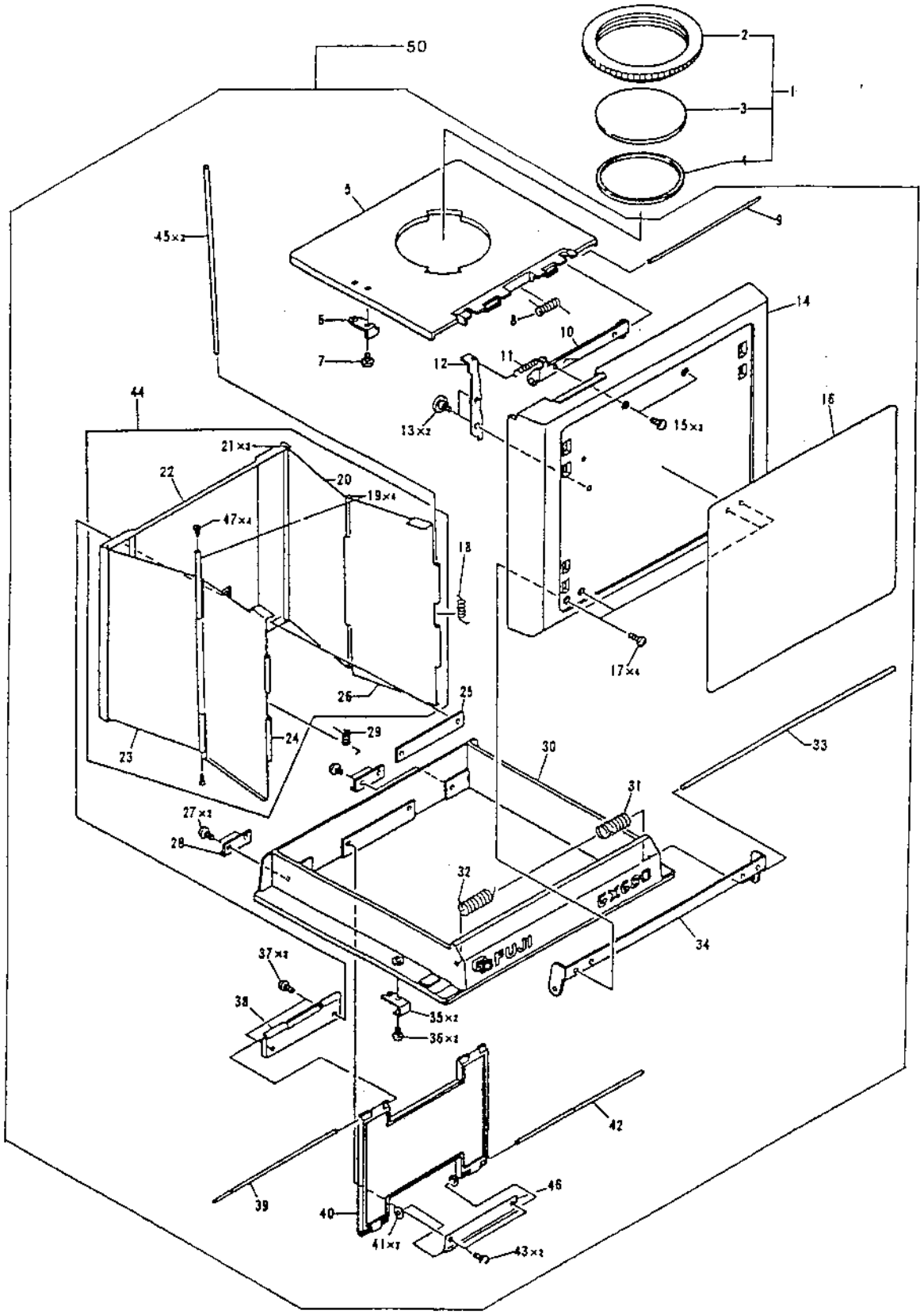
14. FUJI GX680 LENS HOOD



14. FUJI GX680 LENS HOOD

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	23B4656912	Filter ring	1	
2	23B4656920	Aperture selector ring	1	
3	23B4656931	Cover ring	1	
4	47B4656942	Interlock ring	1	
5	16B4656952	Knob	1	
6	30B4656961	Guide pin	2	
7	22A4656850	Aperture seat assembly 8, 9	1	
10	26A4656840	Aperture blade assembly 11, 12	8	
13	22B4657010	Ring	1	
14	50B4657022	Leaf spring	1	
15	16B4657031	Knob	1	
16	81B4657041	Spacer	1	
17	57B4657051	Rear lens cap	1	
18	53B465530	Screw	1	
19	110M170401M	Screw	4	
20	110M200901M	Screw	4	
21	113M170351M	Screw	1	
22	120M200301M	Screw	3	
23	200M24	Steel ball	1	
24	300M140N	Front lens cap	1	

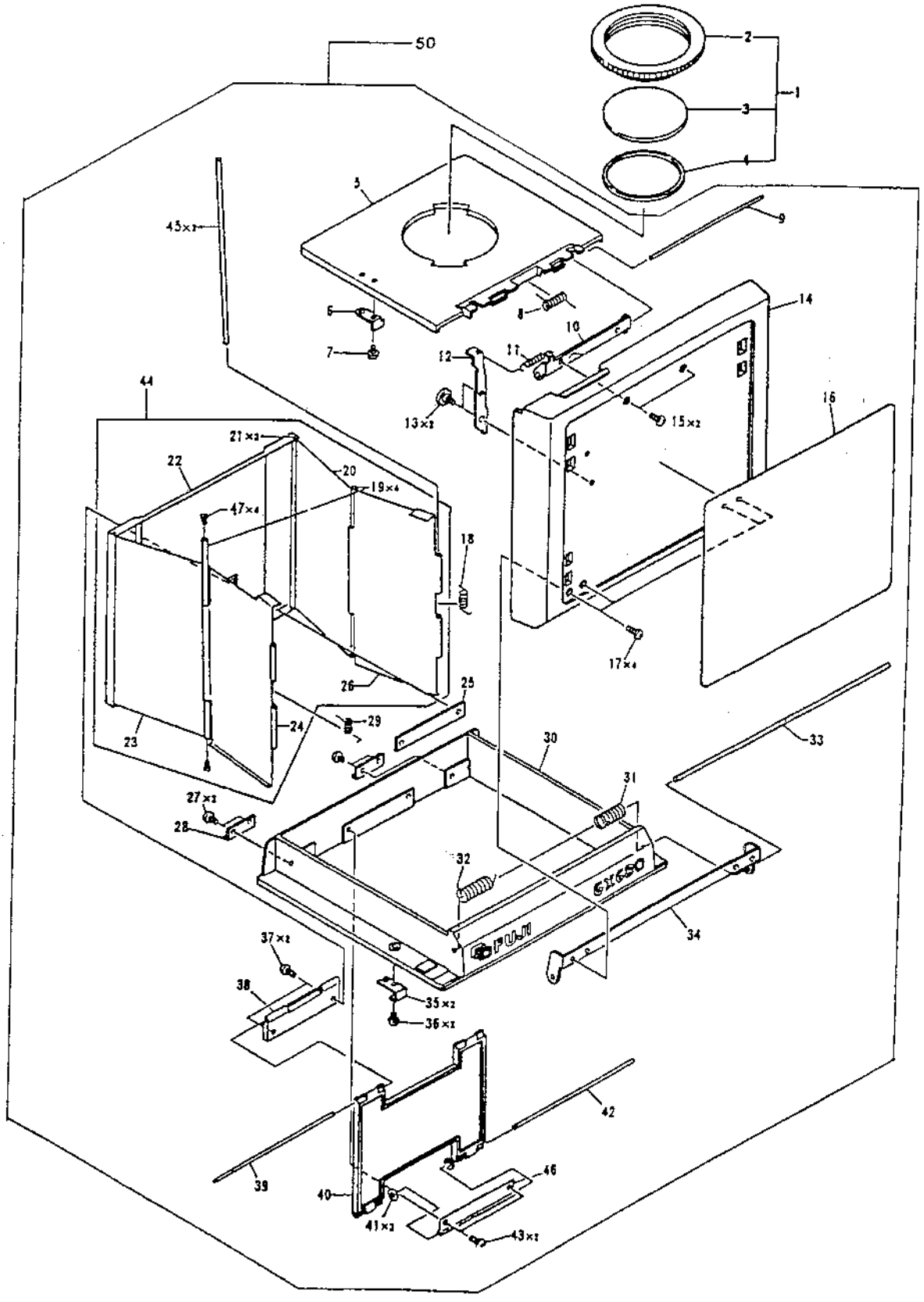
15. FUJI GX680 VIEWFINDER HOOD UNIT



15. FUJI GX680 VIEWFINDER HOOD UNIT

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12197A00	Magnifier assembly	1	
2	23B 4576510	Lens frame	1	
3	1B 4602500	Lens	1	
4	23B 4576520	Lens holder	1	
5	10B 4576360	Magnifier base	1	
6	85B 4576430	Hook	1	
7	113M 170251M	Screw	2	
8	50B 4576440	Spring	1	
9	32B 4576390	Shaft	1	
10	19B 4576370	Hinge	1	
11	50B 4576460	Spring	1	
12	47B 4576410	Lever	1	
13	19B 4576420	Shaft	2	
14	11B 4576150	Cover	1	
15	110M 170253M	Screw	2	
16	84B 4576450	Cover plate	1	
17	110M 170203M	Screw	4	
18	50B 4576250	Spring	1	
19	19B 4576220	Shaft	2	
24	27B 4576160	Right front plate	1	
25	54B 4576330	Nut	1	
26	27B 4576170	Left front plate	1	
27	114M 170401N	Screw	4	
28	162B 4576240	Angle	2	
29	50B 4576260	Spring	1	
30	10B 4576140	Base frame	1	
31	50B 4576920	Spring	1	
32	50B 4576280	Spring	1	
33	19B 4576300	Shaft	1	
34	19B 4576270	Cover hinge	1	
35	162B 4576230	Hook	2	
36	114M 170351M	Screw	2	

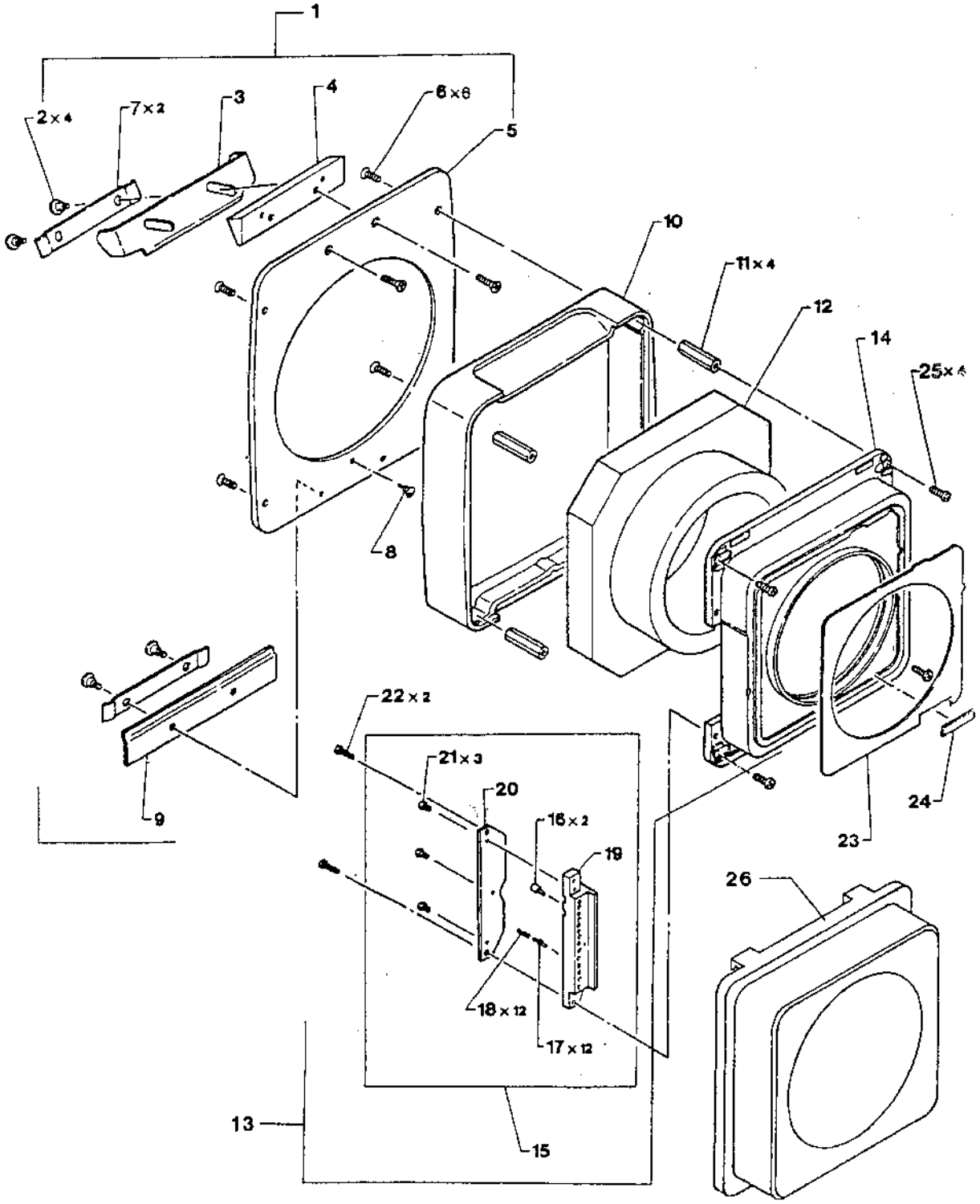
15. FUJI GX680 VIEWFINDER HOOD UNIT



15. FUJI GX680 VIEWFINDER HOOD UNIT

Ref No.	Part No.	Part Name	Q'ty	Remarks
37	110M 170253M	Screw	2	
38	19B 4576320	Hinge	1	
39	19B 4576470	Shaft	1	
40	18B 4576350	Arm	1	
41	55B 4576480	Washer	2	
42	19B 4576340	Shaft	1	
43	113M 170351M	Screw	2	
44	27A 4576130	Side wall assembly 19x2, 20, 21x2, 22, 23	1	
45	19B 4576220	Shaft	2	
46	19B 4576311	Hinge	1	
47	120M 140251M	Screw	4	
50	100A 1244A00	Viewfinder hood assembly	1	

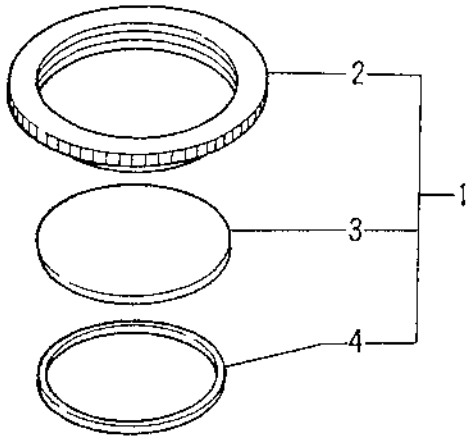
16. FUJI GX680 LENS BOARD ADAPTOR



16. FUJI GX680 LENS BOARD ADAPTOR

Ref No.	Part No.	Part Name		Q'ty	Remarks
1					
2	53B 4655190	Screw		4	
3	47B 4655140	Lever		1	
4	29B 4655150	Seat plate		1	
5	10B 4654970	Adaptor board		1	
6	53B 4655221	Screw		4	
7	50B 4655160	Leaf spring		2	
8	53B 4655190	Screw		1	
9	30B 4655170	Seat plate		1	
10	21B 4652950	Intermediate lens frame		1	
11	32B 4654990	Shaft		4	
12	27B 4654980	K-form		1	
13	10A 4654910	Frame assembly	14, 15	1	
14	10B 4655010	Frame		1	
15	10A 4655000	Connector assembly	16, 17, 18, 19, 20, 21	1	
16	32B 4655070	Shaft		2	
17	109B 4655030	Contact pin		12	
18	50B 4655040	Spring		12	
19	11B 4655020	Housing		1	
20	11B 4655050	PCB		1	
21	113M 170301N	Screw		3	
22	110M 170601M	Screw		2	
23	27B 4582060	Light shielding paper		1	
25	110M 260601M	Screw		4	
26	57B 4583080	Rear cap		1	

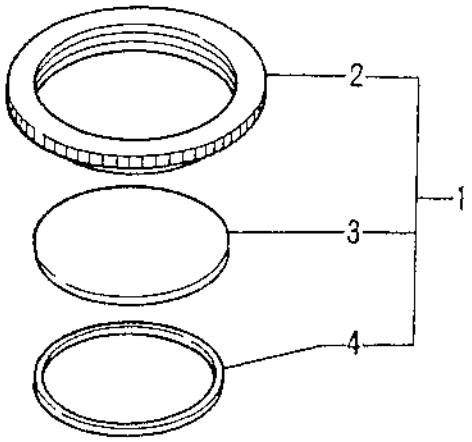
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12204A00	Dioptric adjuster assembly (+3 dioptre)	1	KA322A
		2, 3, 4		

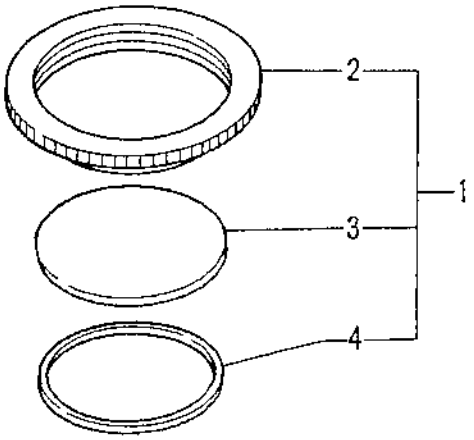
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12203A00	Dioptric adjuster assembly (+2 dioptre)	1	KA321A
		2, 3, 4		

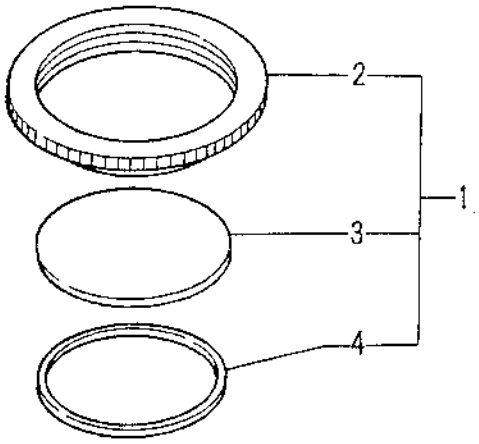
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12202A00	Dioptric adjuster assembly (+1 dioptre) 2, 3, 4	1	KA320A

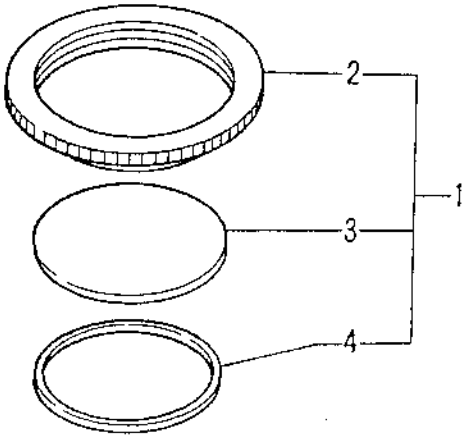
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12201A00	Dioptric adjuster assembly (0 dioptre)	1	KA319A
		2, 3, 4		

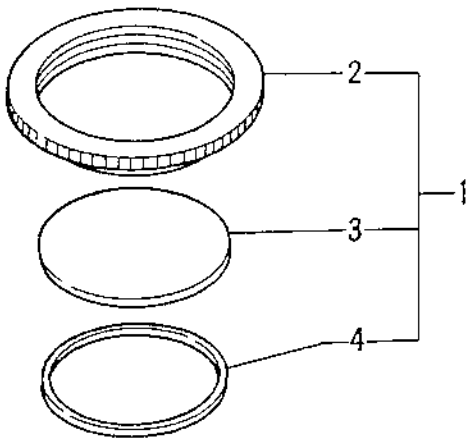
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12197A00	Dioptric adjuster assembly (—1 dioptre)	1	KA315A
		2, 3, 4		

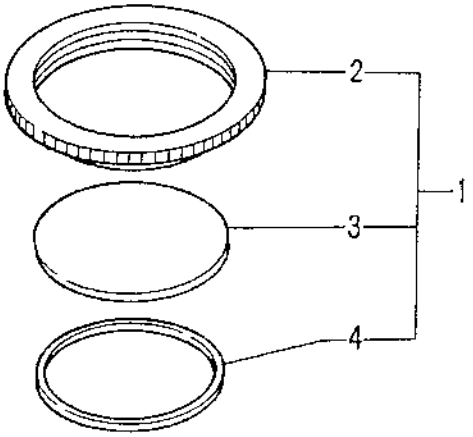
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12200A00	Dioptric adjuster assembly (—2 dioptre)	1	KA318A
		2, 3, 4		

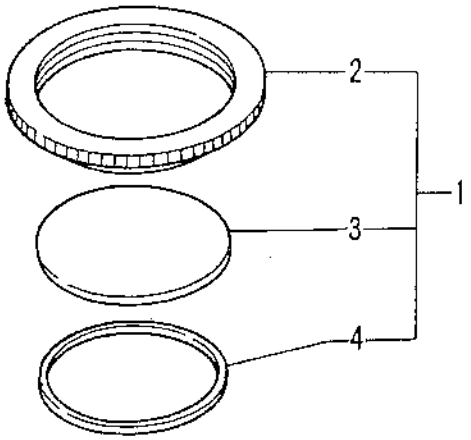
17. FUJI GX680 DIOPTRIC ADJUSTER



17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12199A00	Dioptric adjuster assembly (—3 dioptre)	1	KA317A
		2, 3, 4		

17. FUJI GX680 DIOPTRIC ADJUSTER

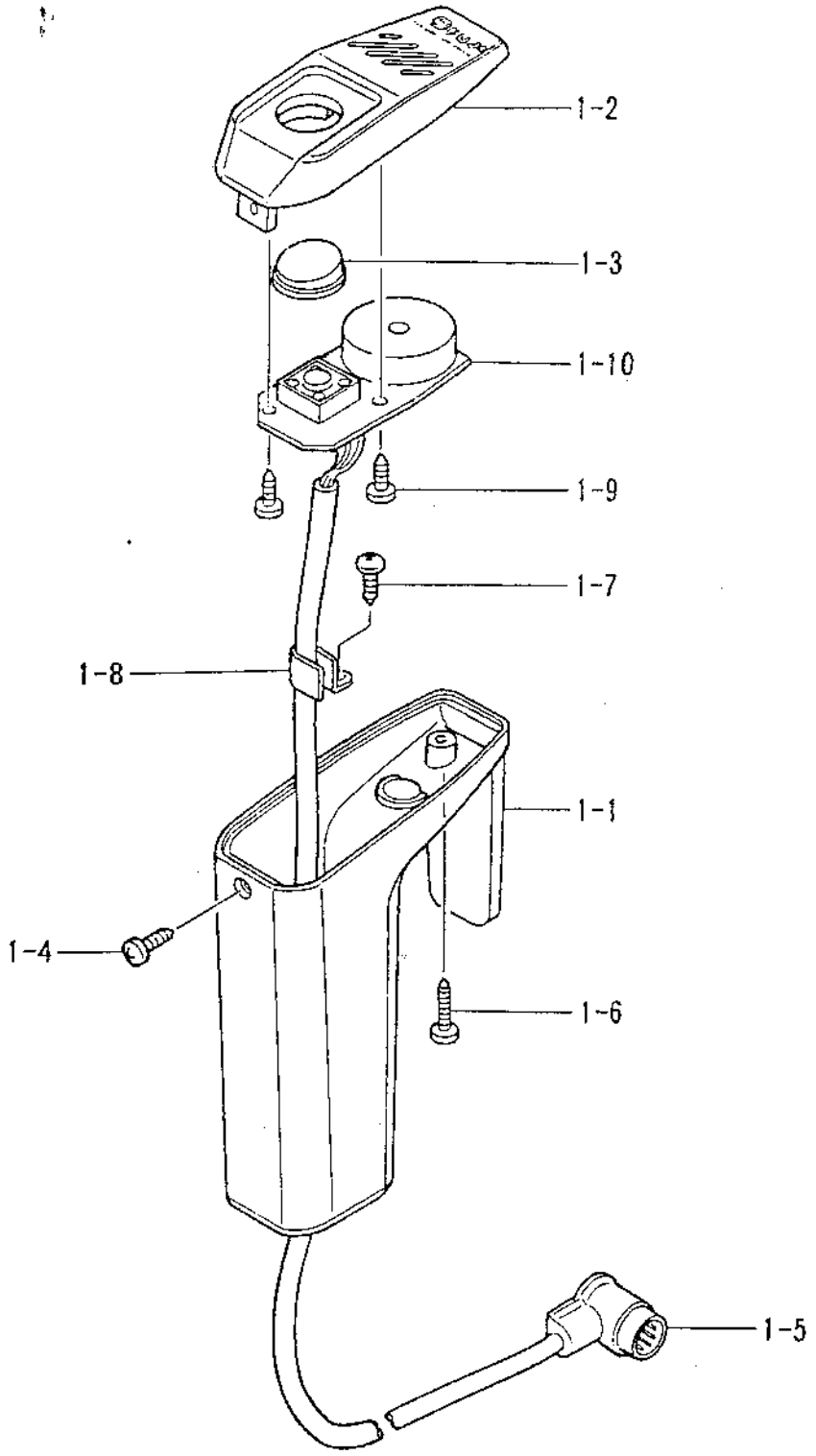


17. FUJI GX680 DIOPTRIC ADJUSTER

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12198A00	Dioptric adjuster assembly (−4 dioptre)	1	KA316A
		2, 3, 4		

18. FUJI GX680 REMOTE RELEASE

Fig. 1

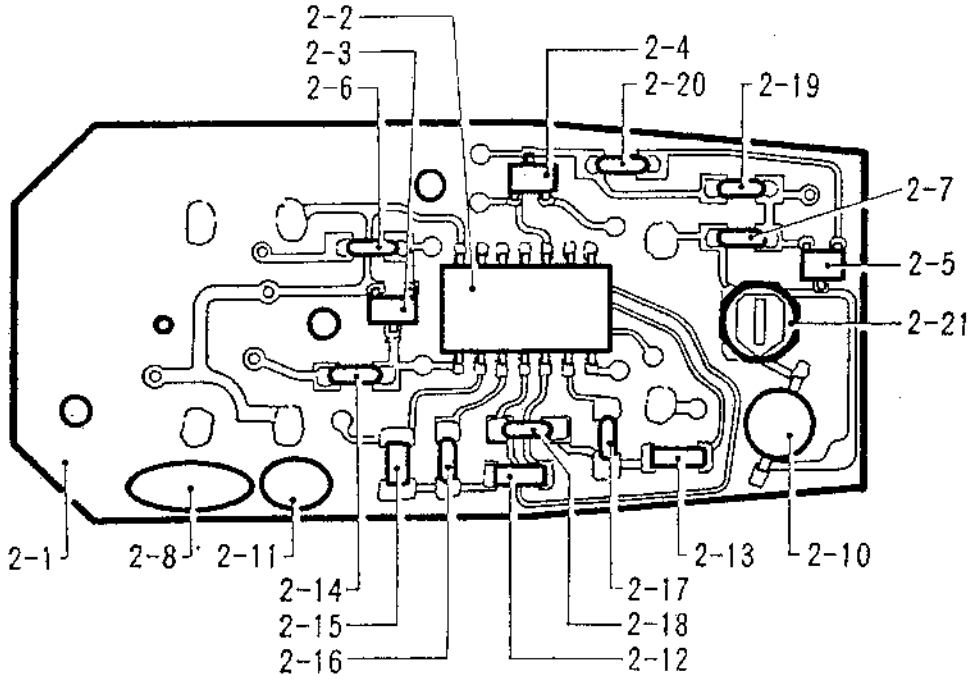


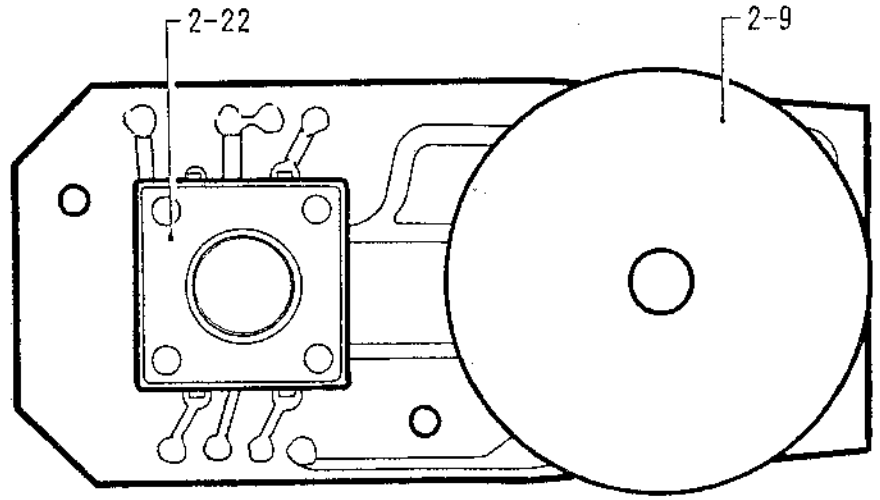
18. FUJI GX680 REMOTE RELEASE

Ref No.	Part No.	Part Name	Q'ty	Remarks
1- 1	10B 4580690	Body	1	
1- 2	11B 4580700	Top cover	1	
1- 3	16B 4580712	Button	1	
1- 4	13M 200453S	Screw	1	
1- 5	113B 4581390	Remote cable (1m)	1	
1- 5	113B 4581402	Remote cable (5m)		
1- 6	113M 201003S	Screw	1	
1- 7	113M 200453S	Screw	1	
1- 8	25B 4580720	Cable clamp	1	
1- 9	113M 200453S	Screw	2	
1-10	110A 4581550	Remote control board	1	
	The remote cable (1m) and remote cable (5m) are same except for the length of the cable.			

18. FUJI GX680 REMOTE RELEASE

Fig. 2

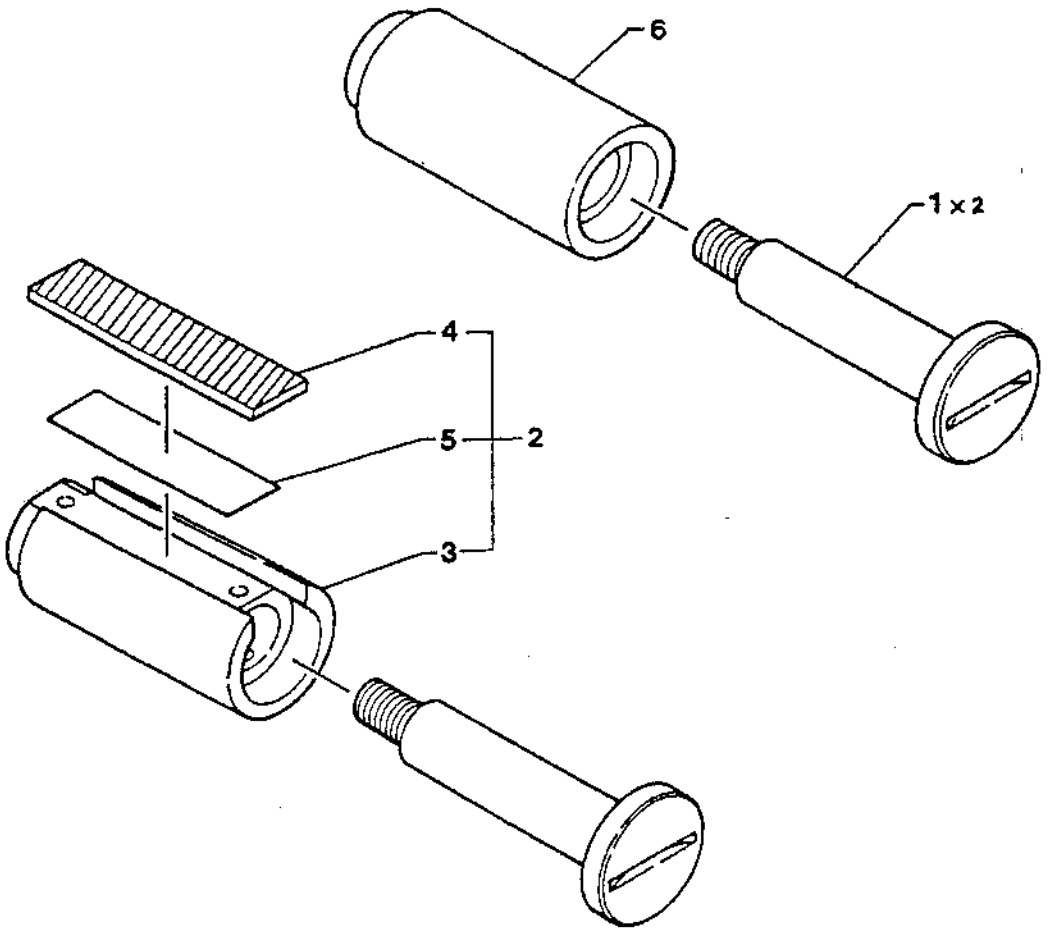




18. FUJI GX680 REMOTE RELEASE

Ref No.	Part No.	Part Name	Q'ty		
2- 9	123K 590430	Buzzer	1		
2-22	121K 590600	Switch	1		

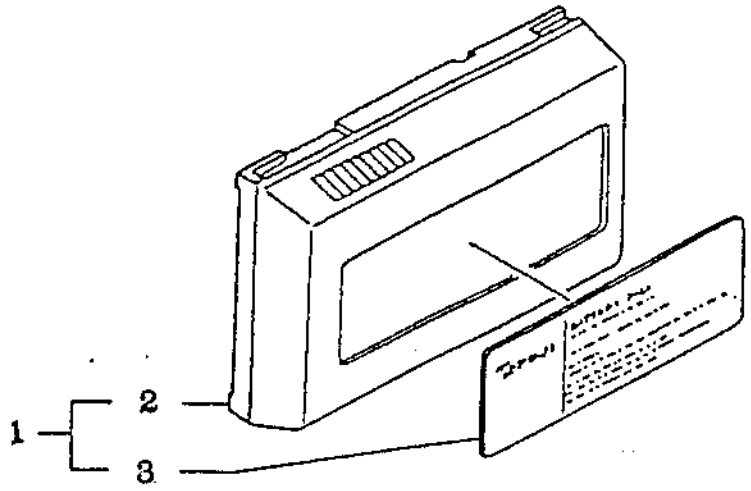
19. FUJI GX680 EXTENTION RAIL (KA314A)



19. FUJI GX680 EXTENTION RAIL (KA314A)

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	53B 4575910	Screw	2	
2	30A 4575950	Extension pipe assembly (A) 3, 4, 5	1	
3	30B 4575890	Extension pipe	1	
4	34B 4575920	Extension rack	1	
5	87B 4575930	Adhesive tape	1	
6	30B 4575900	Extension pipe	1	

20. FUJI GX680 BATTERY PACK



20. FUJI GX680 BATTERY PACK

Ref No.	Part No.	Part Name	Q'ty	Remarks
1	100A 12155A00	Battery pack assembly 2, 3	1	
3	58B 4576730	Specification plate	1	

REPAIR MANUAL
&
PARTS LIST

FOR

FUJI GX680
FILM HOLDER

FUJI PHOTO FILM CO., LTD.
26-30, Nishiazabu 2-Chome, Minato-ku, Tokyo 106, Japan

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6. When a film is loaded and film chamber door is closed, the film is not set to the 1st frame. (Even one second after, it is still in 0 EXP.) 73
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17. When a short film is applied, END is not displayed. 84
18. The exposure counter does not reset to 0 EXP when the film chamber door is opened. . 85
19. The buzzer does not sound when an abnormal condition occurs on the camera. 85
20. The READY monitor on the camera lights or blinks continuously. 85
21. The film holder operates normally at the horizontal position but it does not operate or operates but abnormally at the vertical position. 88
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I. DISASSEMBLY

1. Top cover assembly (2-3)

1.1 Remove four screws (2-27) and two screws (2-69), and remove the cap (2-1).
When removing the cap (2-1), apply a piece of rubber and turn it hard to the left. Then, remove the film speed setting dial (2-2).

1.2 Open the film chamber door, and pull the top cover assembly (2-3) hard to remove it.

2. LCD assembly (1-7)

2.1 Face the notched portion of the film speed dial assembly (1-1) toward the film base side (toward the front), and remove the film speed dial assembly (1-1).

2.2 Unsolder and disconnect eight lead wires on the PCB.

2.3 Remove three screws (1-6), remove two screws (1-4) from the leaf spring (1-5), separate the PCB slowly, and disconnect the connectors (3-11, 3-12 and 3-13).

3. Key plate (1-96)

3.1 Pull out the shaft (1-90) and remove the knob (1-92). Remove two screws (1-91) and remove the leaf spring (1-93).

3.2 Remove the screw (1-95), and remove the guide shaft (1-76) and key plate (1-96).

4. Base plate assembly (1-17) and gear assembly (1-86)

4.1 Remove three screws (1-20), and remove the base plate assembly (1-17). The washer (1-22) and gear (1-21) are fitted to the shaft on the back of the base plate assembly, and these parts will come off.

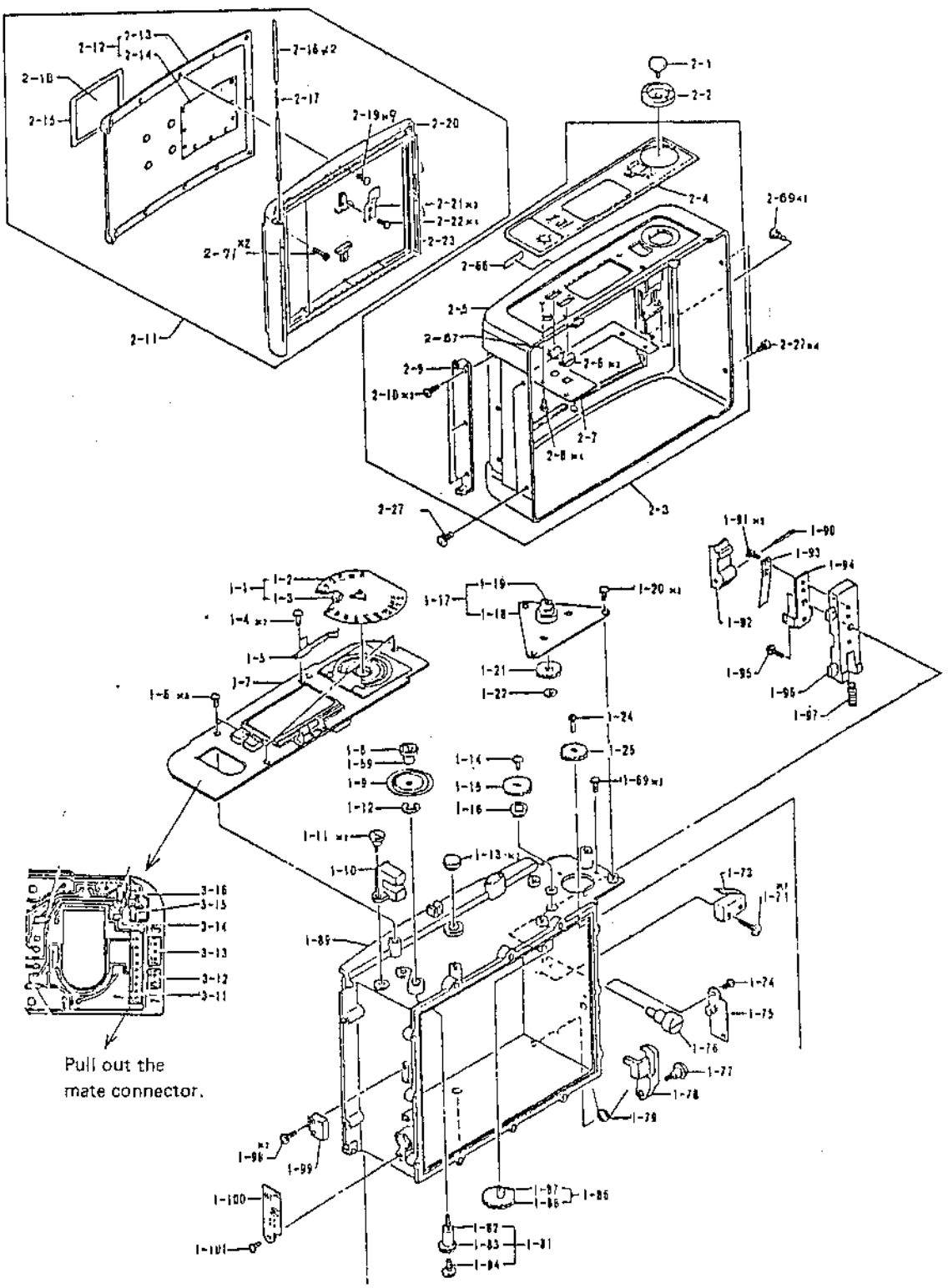
4.2 Hold the gear (1-88), remove the screw (1-14), and remove the gear assembly (1-86) and gear (1-15).

5. Film chamber door assembly (2-11)

5.1 Hold the end of two hinge shafts (2-16) where the spring (2-17) can be seen with a pair of pincers. The film chamber door assembly (2-11) can then be removed from the top cover assembly (2-3).

5.2 Remove two leaf springs (2-21), and remove two screws (2-71) and nine screws (2-19). The pocket plate assembly (2-12) can then be removed. When removing the pocket plate assembly (2-12), pull it hard. It is installed with adhesive.

Fig. 1



6. Motor assembly (1-23)

6.1 Pull out the connector (1-67), remove three screws (1-69), and remove the motor assembly (1-23).

6.2 Remove two screws (1-62). The top gear train can be removed, and top plate assembly (1-26) and bottom plate assembly (1-41) can be removed by pulling them.

7. Revolver assembly (2-28) and power supply assembly (1-80)

7.1 Pull out the connector (4-23), remove four screws (1-102), and remove the power supply assembly (1-80).

7.2 Remove seven screws (2-48), four screws (2-52) and screw (2-49), and remove the revolver assembly (2-28).

7.3 Remove 12 screws (2-51), and remove the film base (2-68).

8. Exposure counter

8.1 Remove two screws (1-11), and remove the P.T.K. assembly (1-10).

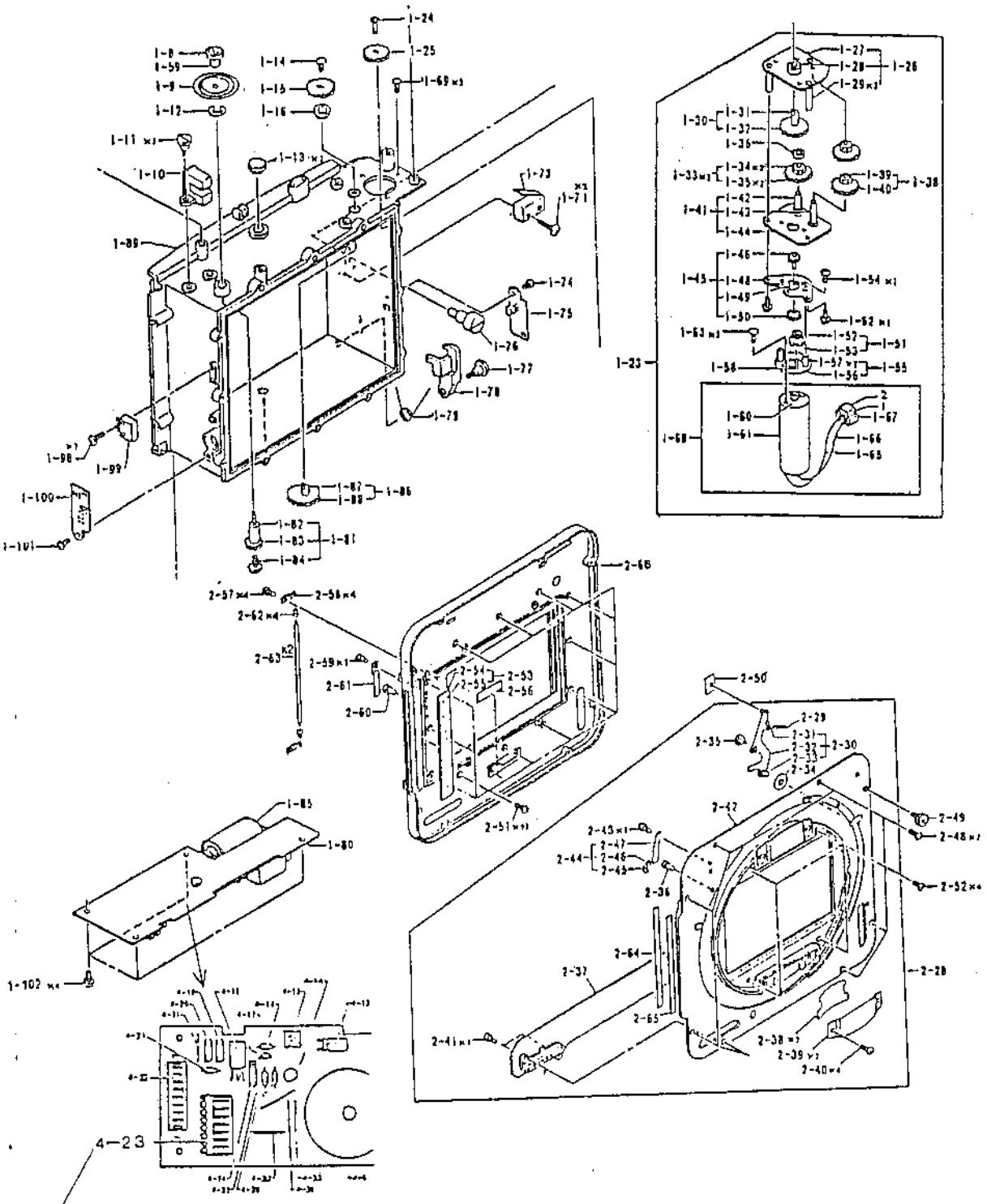
8.2 Hold the counter gear assembly (1-81) and turn the cap (1-59) to the left. The cap (1-59) can then be removed.

8.3 Pull out the disc (1-9), remove the E-clip (1-12), and pull out the counter gear assembly (1-81).

9. Other parts

Remove the screw (1-77), and remove the hook (1-78). All other parts can be removed by removing the appropriate screws.

Fig. 2



II. REASSEMBLY AND ADJUSTMENT

1. Revolver assembly (2-28)

1.1 Place two holders (2-39) on two leaf springs (2-38), and install them securely with four screws (2-40).

NOTE:

Be careful not to allow the leaf spring head coming out of the position. It may come into contact with the interior of the lens mount causing the revolver not to turn smoothly.

1.2 After insuring that the steel ball of the interlock pin assembly (2-36) turns smoothly, insert the interlock pin assembly into the hole on the revolving plate (2-42), and install the lock plate assembly (2-44) with two screws (2-43).

NOTE:

Install the lock plate assembly (2-44) so that the claw head is in tight contact with the revolving plate (2-42) and that the dark slide is hooked correctly.

1.3 Apply the light shielder (2-34) to the pin (2-33) of the lock lever assembly (2-30), and install the lock lever assembly (2-30) with the screw (2-35).

NOTE:

If the lever head (indicated as A) is deformed or has a play, the dark slide may disengage with the lever when a dark slide is inserted and the film holder cannot be detached from the camera body.

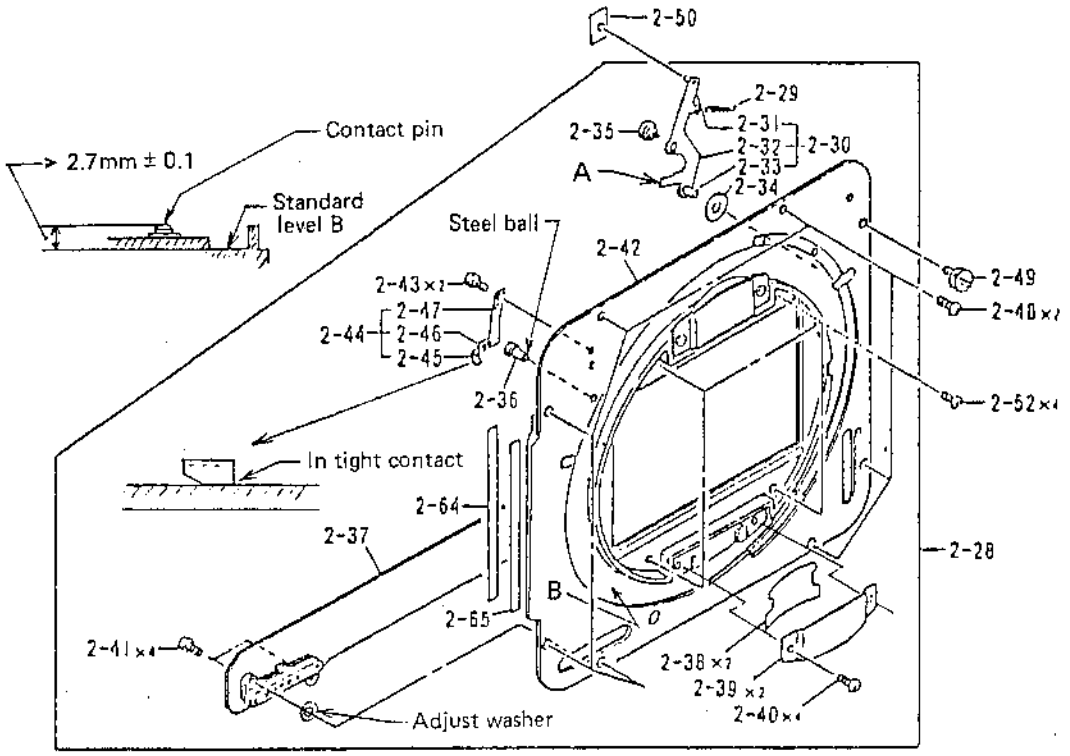
Adjust the lever head correctly to eliminate any play.

1.4 Install the contact PCB assembly (2-37) with four screws (2-41).

When installed, height of the contact pin should be 2.7±0.1mm.

When adjustment is required, use a washer.

Fig. 3


2-50
2-29
2-31
2-32
2-33
2-34
2-30
2-35
A
Contact pin
2.7mm ± 0.1
Standard level B
Steel ball
2-42
2-43×2
2-47
2-44
2-46
2-45
2-36
2-49
2-48×2
2-52×4
In tight contact
2-64
2-37
2-28
B
2-65
2-41×4
2-38×2
2-39×2
2-40×4
Adjust washer

2. Motor assembly (1-23)

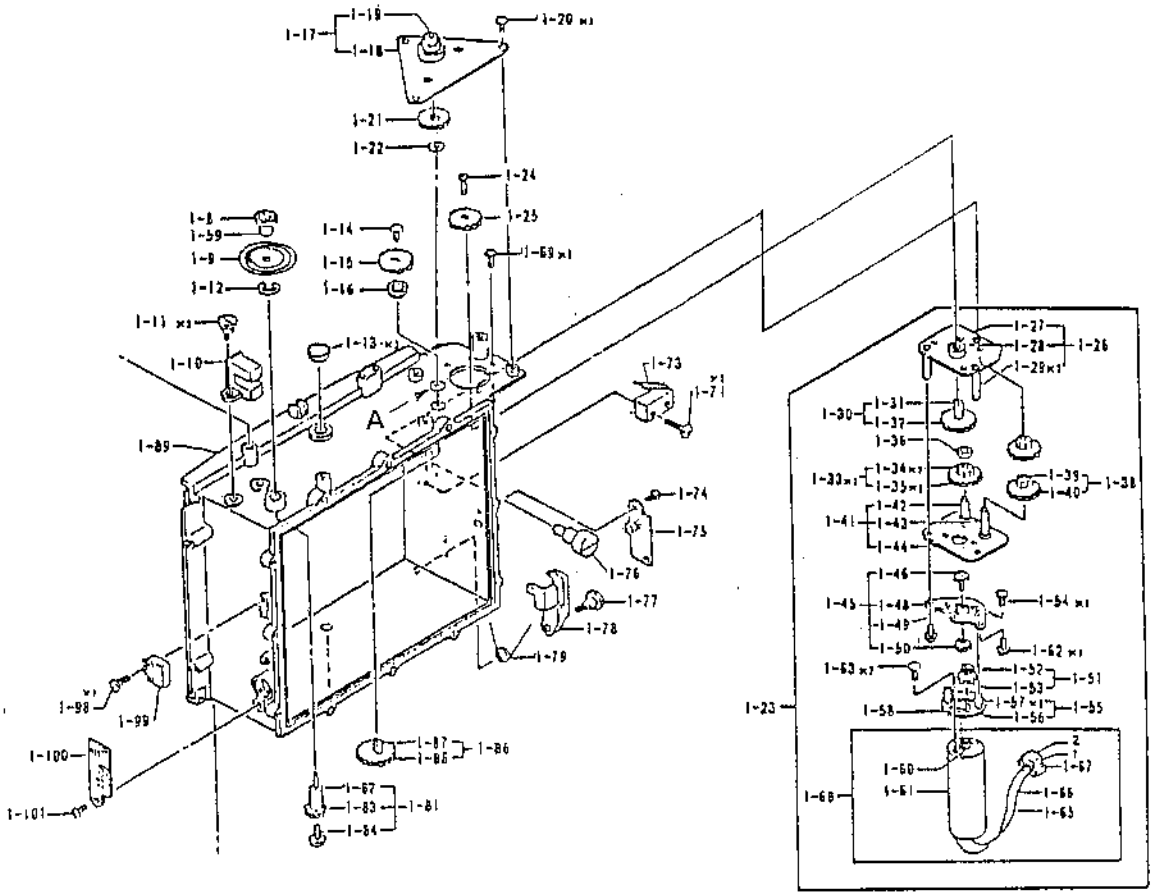
2.1 Install the motor assembly (1-23) with three screws (1-69).

2.2 Apply grease to the shaft portion of the base plate assembly (1-17) properly, and apply the gear (1-21) and washer (1-22) to the shaft.

Now, install the base plate assembly (1-17) on the film holder body by inserting the shaft into the hole A, and secure the base plate assembly (1-17) with three screws (1-20).

Then, apply 5 to 6V to the motor connector (1-67), and make sure that the motor and each gear train turn smoothly.

Fig. 4


1-17
1-18
1-19
1-20 ×1
1-21
1-22
1-24
1-25
1-69 ×1
1-8
1-59
1-9
1-12
1-14
1-15
1-16
1-11 ×1
1-13 ×1
1-10
1-89
A
1-73
1-71 ×1
1-74
1-75
1-76
1-77
1-78
1-79
1-98 ×1
1-99
1-100
1-101
1-87
1-88
1-86
1-82
1-83
1-84
1-81
1-23
1-27
1-28
1-26
1-29 ×1
1-30
1-31
1-37
1-36
1-33 ×1
1-34 ×1
1-35 ×1
1-39
1-40
1-38
1-41
1-42
1-43
1-44
1-46
1-45
1-48
1-49
1-50
1-64 ×1
1-62 ×1
1-63 ×2
1-52
1-51
1-53
1-58
1-57 ×1
1-56
1-55
1-60
1-61
1-68
1-67
1-66
1-65

3. Film holder body

3.1 Install two covers (1-13) and bushing (1-16) on the main body with Araldite or Highsuper. Be careful not to allow the adhesive flowing into the main body.

Apply Losoid grease 6308-G-1 slightly to the shaft of the gear assembly (1-86), insert the gear assembly to the bushing from the inside, fit the gear (1-15) on it and tighten the screw (1-14) securely.

3.2 Install the shaft holder (1-94) on the key plate (1-96) with the screw (1-103), apply Losoid grease 6308-G-1 properly to the portion of the key plate which slides on the main body, insert the spring (1-97) into the groove of the key plate, and fit them to the main body together.

Next, Insert the guide shaft (1-76), and secure it with the screw (1-95).

Make sure that the key plate operates smoothly.

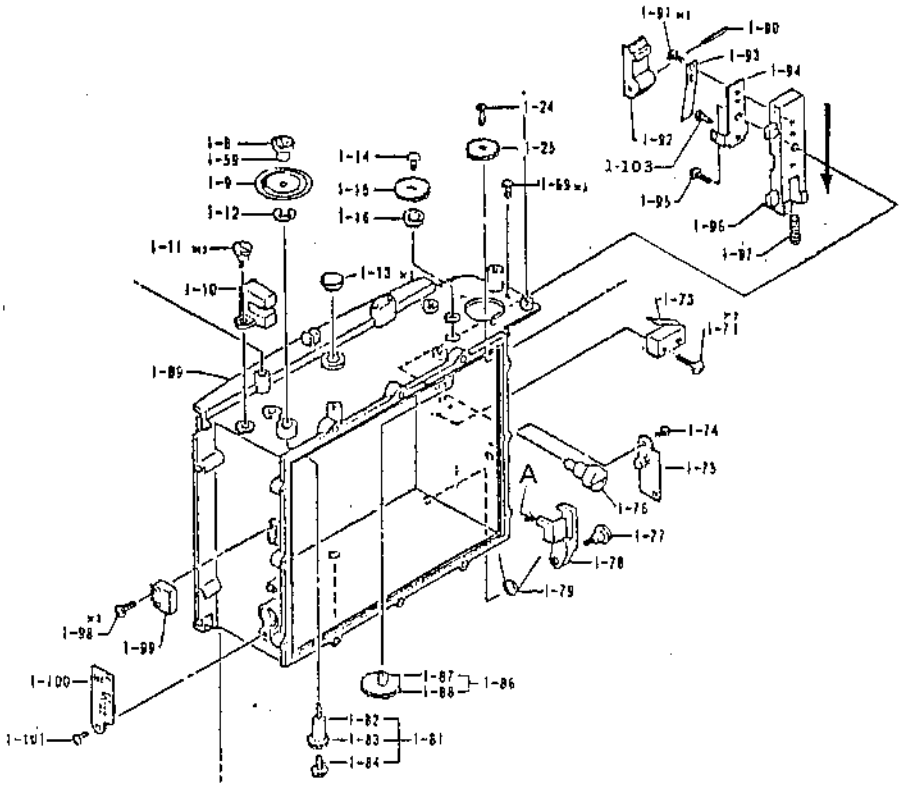
Now, apply the spring (1-79) to the shaft on the main body, insert the head of the hook (1-78) into the hole, secure it with the screw (1-77), and hook one end of the spring to the hook and the other end to the boss of the main body where the washer is installed.

Make sure that the hook engages when the key plate is pushed toward the arrow and that the hook returns when position A of the hook is pushed.

3.3 Install the leaf spring (1-93) with two screws (1-91).

Insert the shaft (1-90) into the shaft holder, and install the knob (1-92) on the leaf spring (1-93).

Fig. 5


1-91 ×1
1-90
1-93
1-94
1-24
1-25
1-8
1-58
1-14
1-9
1-15
1-69 ×1
1-12
1-16
1-92
1-103
1-95
1-96
1-97
1-11 ×3
1-13 ×1
1-10
1-73
1-71 ×7
1-89
1-74
1-75
A
1-76
1-77
1-78
1-79
1-98 ×1
1-99
1-100
1-87
1-88
1-86
1-101
1-82
1-83
1-81
1-84

3.4 Installing each switch and photocoupler

1) Install the switch assembly (1-73) on the bottom of the key plate with two screws (1-71).

Make sure that the switch turns on when the key engages with the hook and that the switch turns off when the key plate is released.

2) Install the photocoupler (1-75) with the screw (1-74) and install the photocoupler (1-100) with the screw (1-101).

NOTE:

The lead wire of the photocoupler (1-100) is provided with a connector.

Do not mix up these photocouplers, but install them on their correct locations.

3) Install the switch (1-99) with two screws (1-98) temporarily. (This switch is to be adjusted later for ON-OFF.)

3.5 Installing the exposure counter

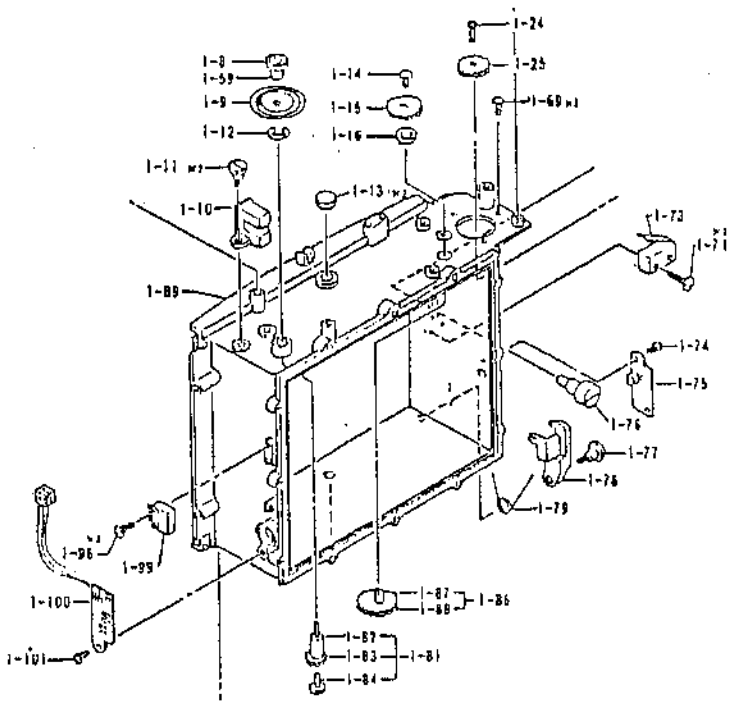
1) Insert the shaft portion of the counter gear assembly (1-81) into the hole on the main body from the main body interior, and secure it with the E-clip (1-12).

2) Apply the disc (1-9) to the shaft, and after applying screw locking agent to the threads of the cap (1-59), screw the cap onto the shaft.

NOTE:

Be careful not to deform the disc.

Fig. 6


1-24
1-25
1-8
1-59
1-9
1-12
1-14
1-15
1-16
1-69 ×1
1-11 ×2
1-13 ×2
1-10
1-89
1-73
1-71 ×1
1-74
1-75
1-76
1-77
1-78
1-79
1-96 ×1
1-99
1-100
1-101
1-87
1-88
1-86
1-82
1-83
1-81
1-84

3.6 Install the power supply assembly (1-80) and LCD assembly (1-7)

1) Install the power supply assembly (1-80) with four screws (1-102).

2) Install the LCD assembly (1-7) with three screws (1-6), and install the leaf spring (1-5) with two screws (1-4) temporarily. Adjustment will be made later.

3) After making sure that the individual parts are installed correctly, solder and connect each lead wire by referring to the wiring diagram, and connect each connector.

NOTE:

When a connector is applied inversely, it cannot be connected.

If it is forced to connect, the connector will be damaged.

Fig. 7

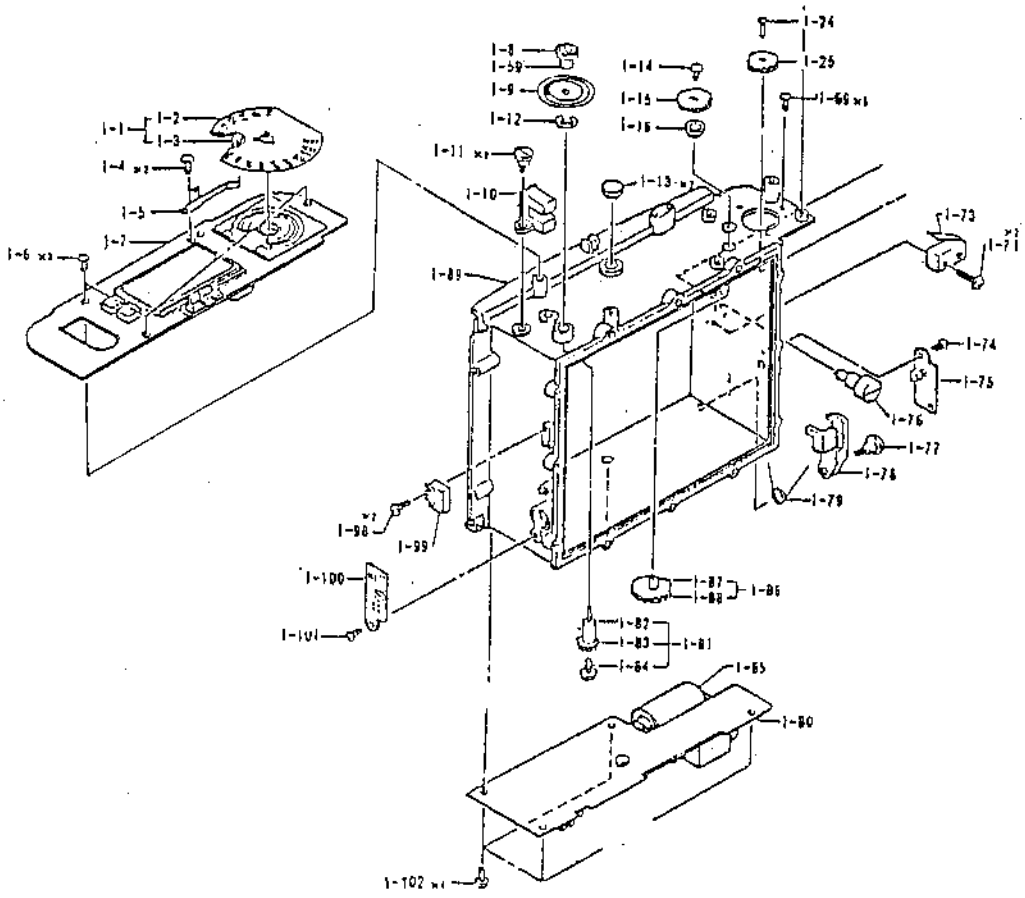
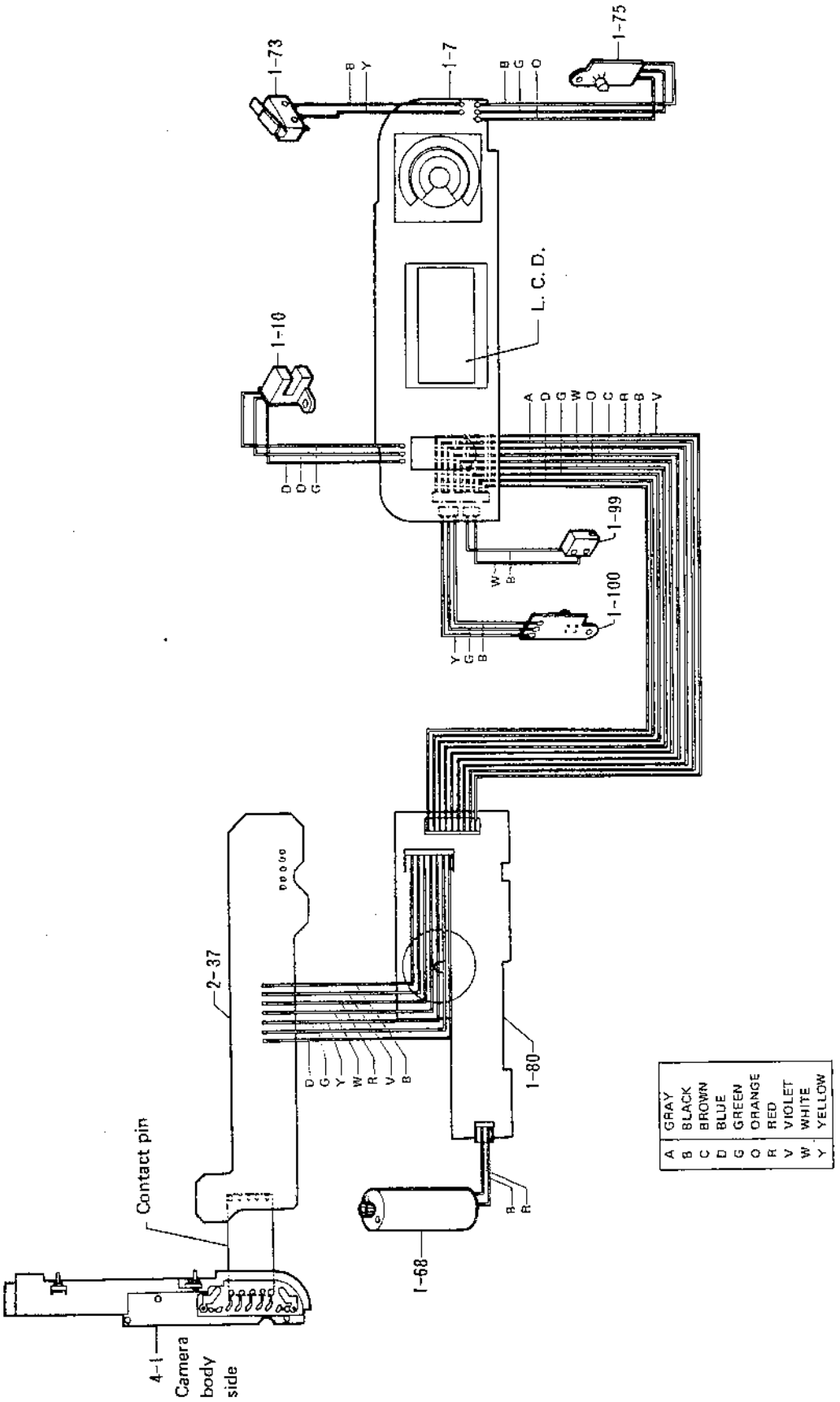


Fig. 8

WIRING DIAGRAM



4. **Installing the film base (2-68) and adjusting the film speed dial assembly (1-1)**

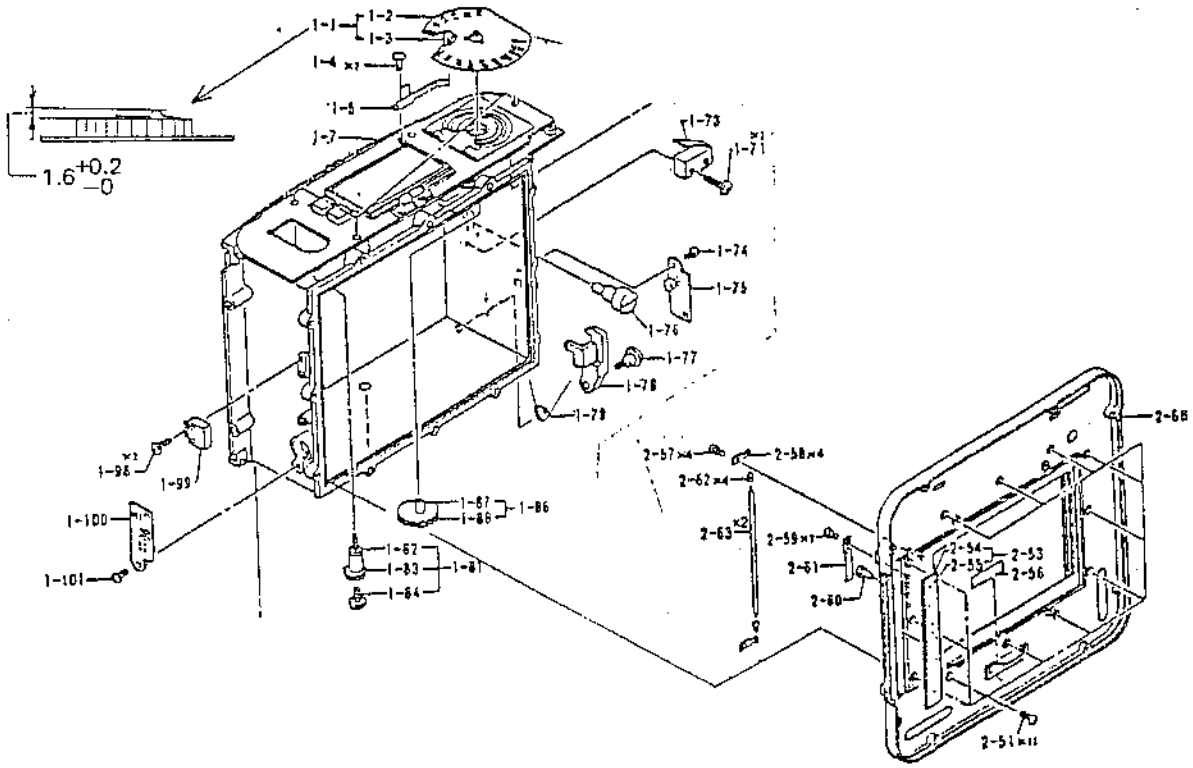
4.1 Make sure that two guide rollers (2-63) turn smoothly and that four shaft holders (2-58) are not deformed first, and then, install the film base (2-68) on the main body with 12 screws (2-51).

4.2 Raise the contact (1-3) and adjust the height to $1.6^{+0.2}_{-0}$mm.

4.3 Throughly clean the film speed selecting pattern with Freon, and apply electrically conductive grease (Three Bond 2581C) evenly with a brush.

4.4 Fit the film speed dial assembly (1-1) to the shaft, turn it by your hand, and secure the leaf spring (1-5) with two screws (1-4) at a position where the film speed dial clicks properly.

Fig. 9



5. Installing the revolver assembly (2-28) and adjusting the switch (1-99)

5.1 Fit the shielder/spring (2-53) to the film base (2-68) correctly, passing the connector through the square hole of the film base, fit the revolving plate (2-42) to the film base, and secure it with seven screws (2-48) and stopper (2-49).

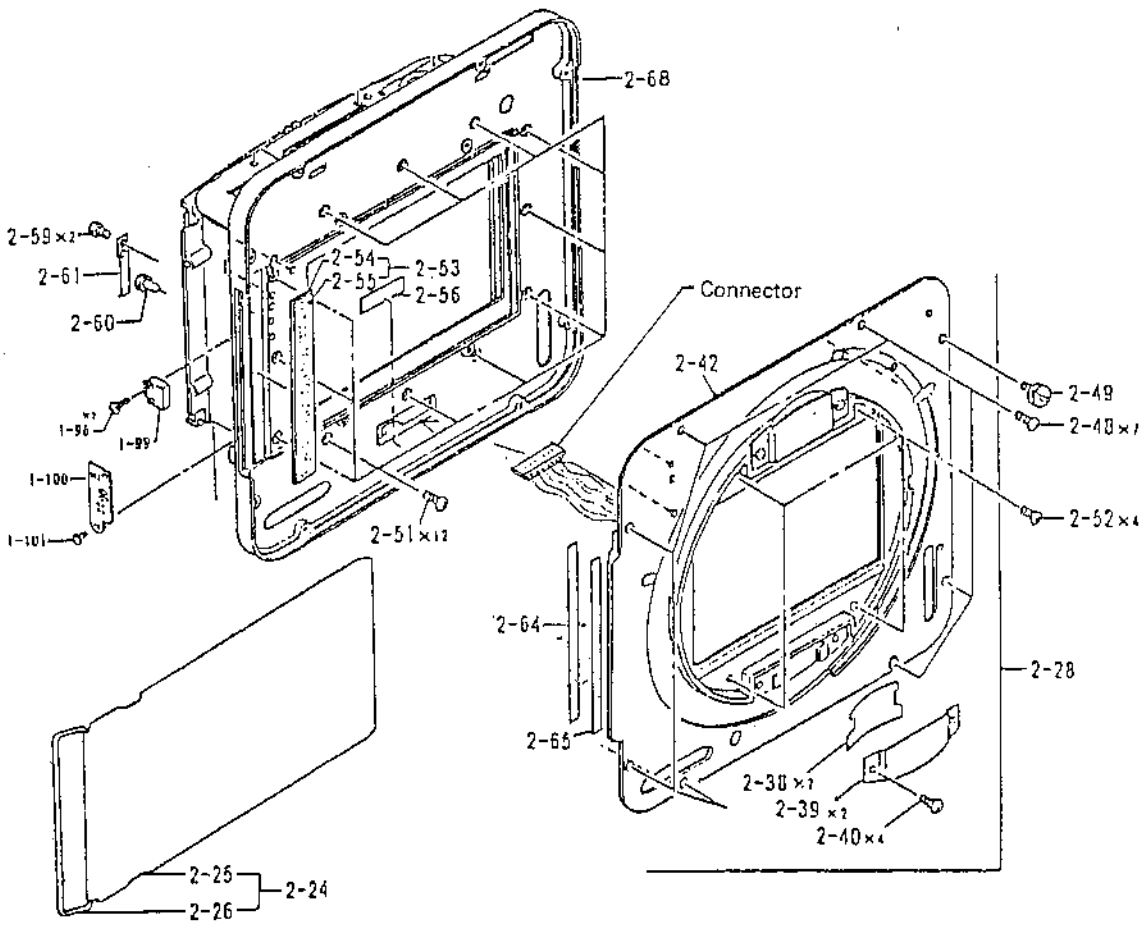
5.2 Make sure that the dark slide (2-24) can be inserted and removed smoothly first. Then, select a proper position of the switch (1-99) and/or properly bend the leaf spring (2-61) after loosening two screws (2-98) so that the switch (1-99) turns on when the dark slide is inserted and turns off when removed.

After completing the adjustment, be sure to retighten the screws (2-98) securely.

NOTE:

For adjustments of the photocouplers and film transporting system refer to III - ELECTRICAL SYSTEM DESCRIPTION below.

Fig. 10



6. Top cover assembly (2-3) and film chamber door assembly (2-11)

6.1 Thoroughly clean the LCD surface carefully with Freon so as not to scar it, and thoroughly clean the top cover interior and LCD panel (window) interior to remove dust and stain.

6.2 Raise the open-close knob, match the hole, and install the top cover assembly (2-3) on the film base (2-68) with four screws (2-27) and two screws (2-69).

NOTE:

Those four screws used in the sides and two screws in the top are different.

Be careful not to mix them.

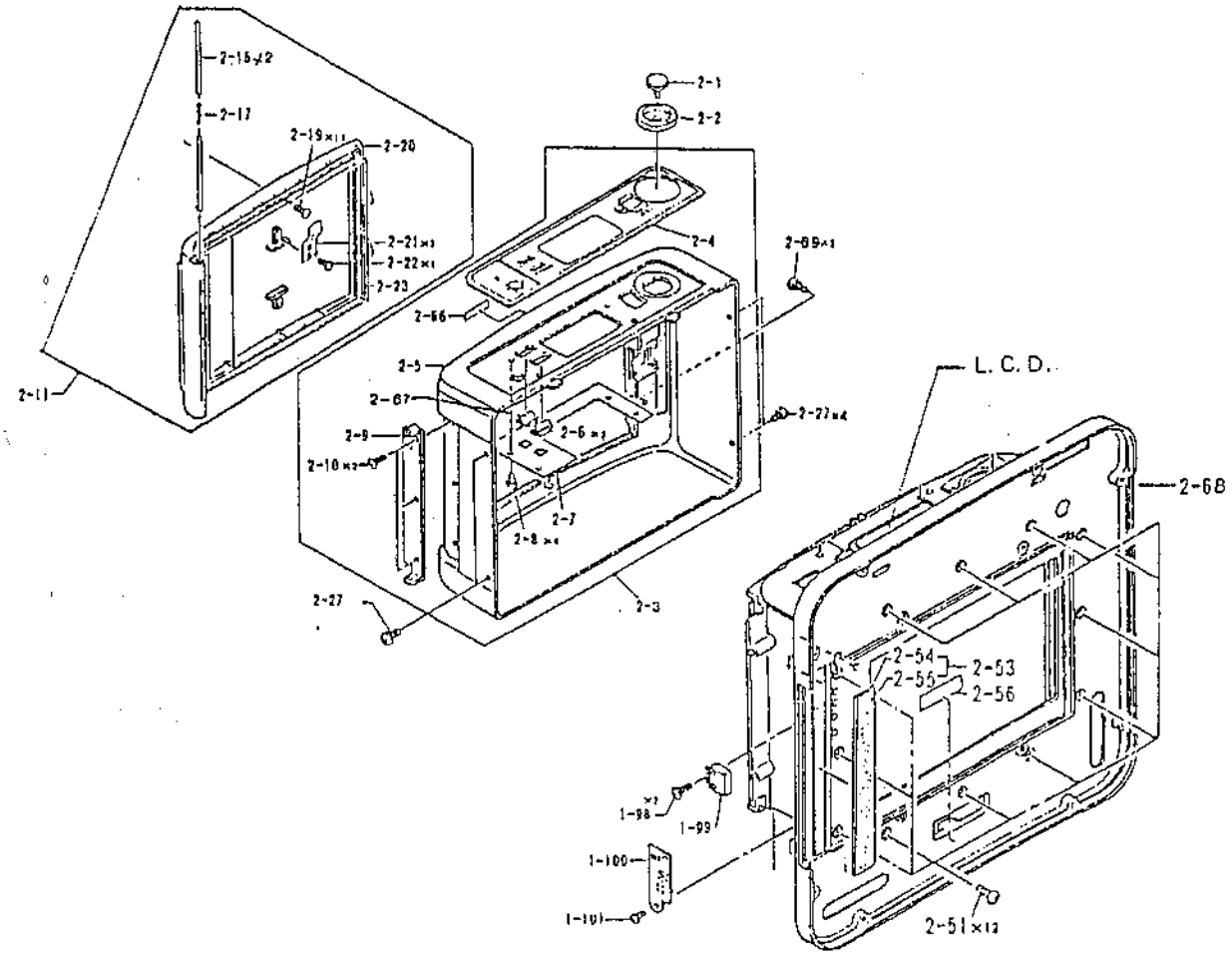
6.3 Holding the spring (2-17) in between two shafts (2-16), insert the shafts (2-16) from both sides of the film chamber door assembly, and fit the film chamber door to the hinge on the top cover assembly (2-3).

NOTE:

Make sure that the shafts operate smoothly. If not, the film chamber door will easily drop off.

6.4 Repeat opening and closing the film chamber door, and make sure that the hook engages and film chamber door is locked correctly when the key plate runs with a snap.

Fig. 11


2-15×2
2-17
2-19×11
2-20
2-21×1
2-22×1
2-23
2-11
2-1
2-2
2-4
2-69×1
2-66
2-5
2-67
2-6×1
2-9
2-10×2
2-7
2-8×4
2-27
2-3
2-27×4
L. C. D.
2-68
2-54
2-55
2-53
2-56
1-98×2
1-99
1-100
1-101
2-51×12

III. ELECTRICAL SYSTEM DESCRIPTION

1. Switch description

SYMBOL	NAME	OPERATION
S1	Call/Light Button switch	When this turns on, "L" level is input to terminal CALL of the CPU. a) When a film holder is mounted, the lamp lights illuminating the LCD so that the exposure counter can be seen easily. b) When the film holder is not mounted on the camera but separated alone, the exposure counter is displayed by the built-in back up battery.
S2	Film chamber door switch	a) When the film chamber door is closed, this switch turns off, and "H" level is input to terminal SB of the CPU. b) When the film chamber door is opened, this switch turns on, and "L" level is input terminal SB of the CPU.
S3	Total number of shots button switch (Total shot indicating button switch)	When this switch turns on, "L" level is input to terminal TOL of the CPU. Number of shots is accumulated whenever one frame is advanced, and a number is indicated in 100 digits.
S4	Dark slide switch	When the dark slide is inserted, this switch turns on, and "L" level is input to terminal SHAKO of the CPU. When the dark slide is removed, this switch turns off, and "H" level is input to terminal SHAKO of the CPU.
R-ISO	Film speed (ISO) selector dial	Used to set film speed (ISO) to the appropriate film speed (from ISO 25 to 1600). The set film speed is indicated in the display window.
	Reset land	"H" level is input to terminal RESET of the CPU and total number of shots indicated by the exposure counter is reset by short-circuiting the reset land on the PCB of the LCD assembly with a conductive material.

(NOTE):

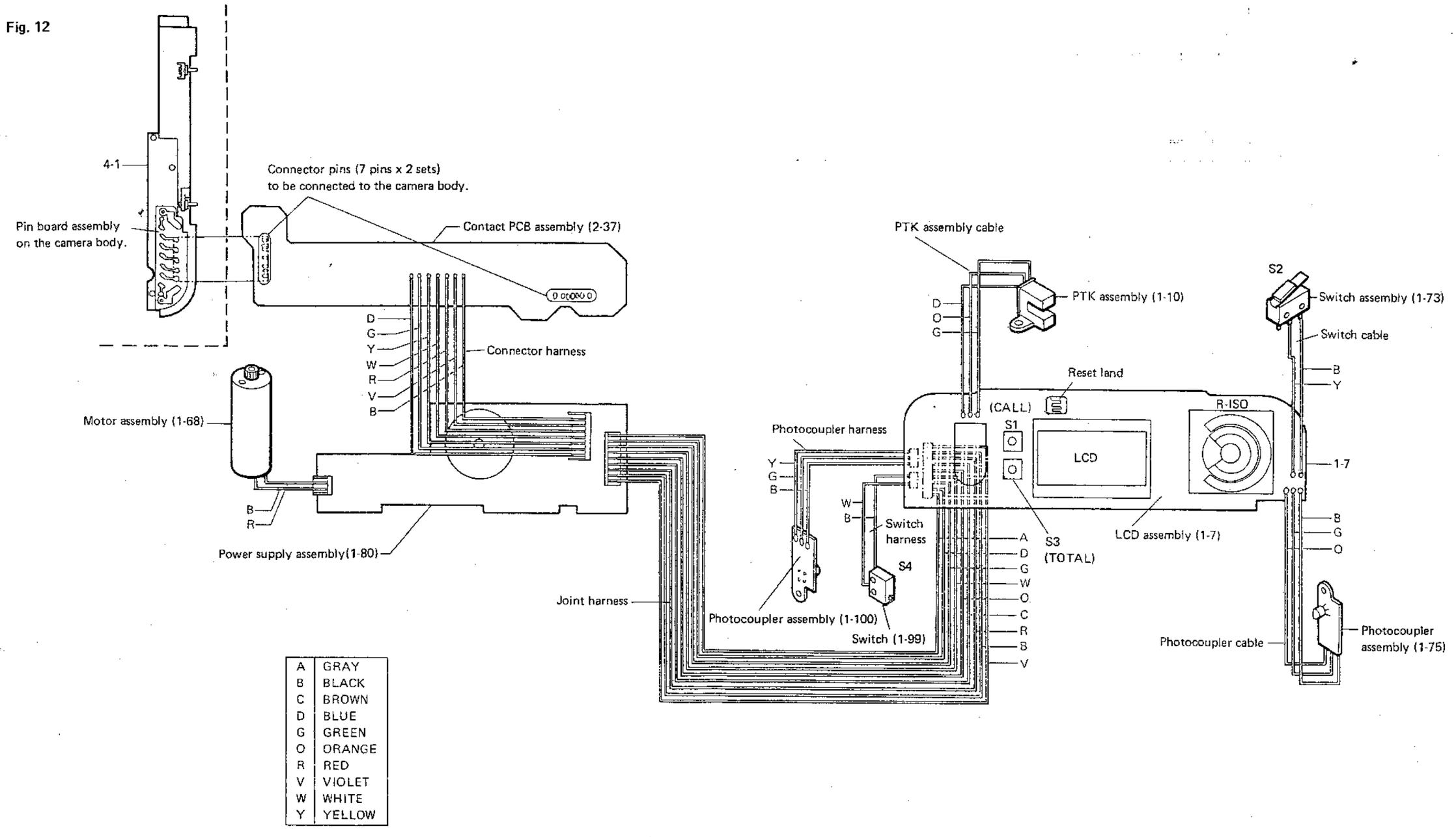
Switch symbol numbers preceded by character "S" (such as S1 and S2) denote the switches used in the film holder.

Switch symbol numbers preceded by characters "SW" (such as SW1 and SW2) denote the switches used in the Fuji GX680 camera body.

Further, symbols such as S3 and S4 are used also as terminal names of the liquid crystal display (LCD) on the film holder.

2. Wiring diagram for the film holder

Fig. 12



A	GRAY
B	BLACK
C	BROWN
D	BLUE
G	GREEN
O	ORANGE
R	RED
V	VIOLET
W	WHITE
Y	YELLOW

3. Functions of each assembly

(1) LCD assembly (1-7)

- o Film holder control CPU (FG680) and peripheral circuits
- o LCD drive circuit
- o Interruption circuit
- o Interface circuit against GX680 camera
- o LCD illumination lamp drive circuit
- o Holder type set circuit
- o Phtocoupler level detecting circuit
- o ISO data signal circuit

(2) Power supply assembly (1-80)

- o 5V regulator circuit
- o Buzzer drive circuit
- o Take-up motor drive circuit
- o Signal transition between the LCD assembly and GX680 camera

(3) Photocoupler assembly (1-100)

- o Circuit of film reflection ratio detecting photocoupler (A) (with harness)

(4) Photocoupler assembly (1-75)

- o Circuit of film reflection ratio detecting photocoupler (B) (with ribbon cable)

(5) PTK assembly (1-10)

- o Film transporting detecting photocoupler and ribbon cable

(6) Switch assembly (1-99)

- o Dark slide switch (S4) with connector and lead wire

(7) Switch assembly (1-73)

- o Film chamber door switch (S2) with ribbon cable.

(8) Contact PCB assembly (2-37)

Signal contacts and transitions of signals between the film holder and GX680 camera (with connector harness)

4. Timing chart

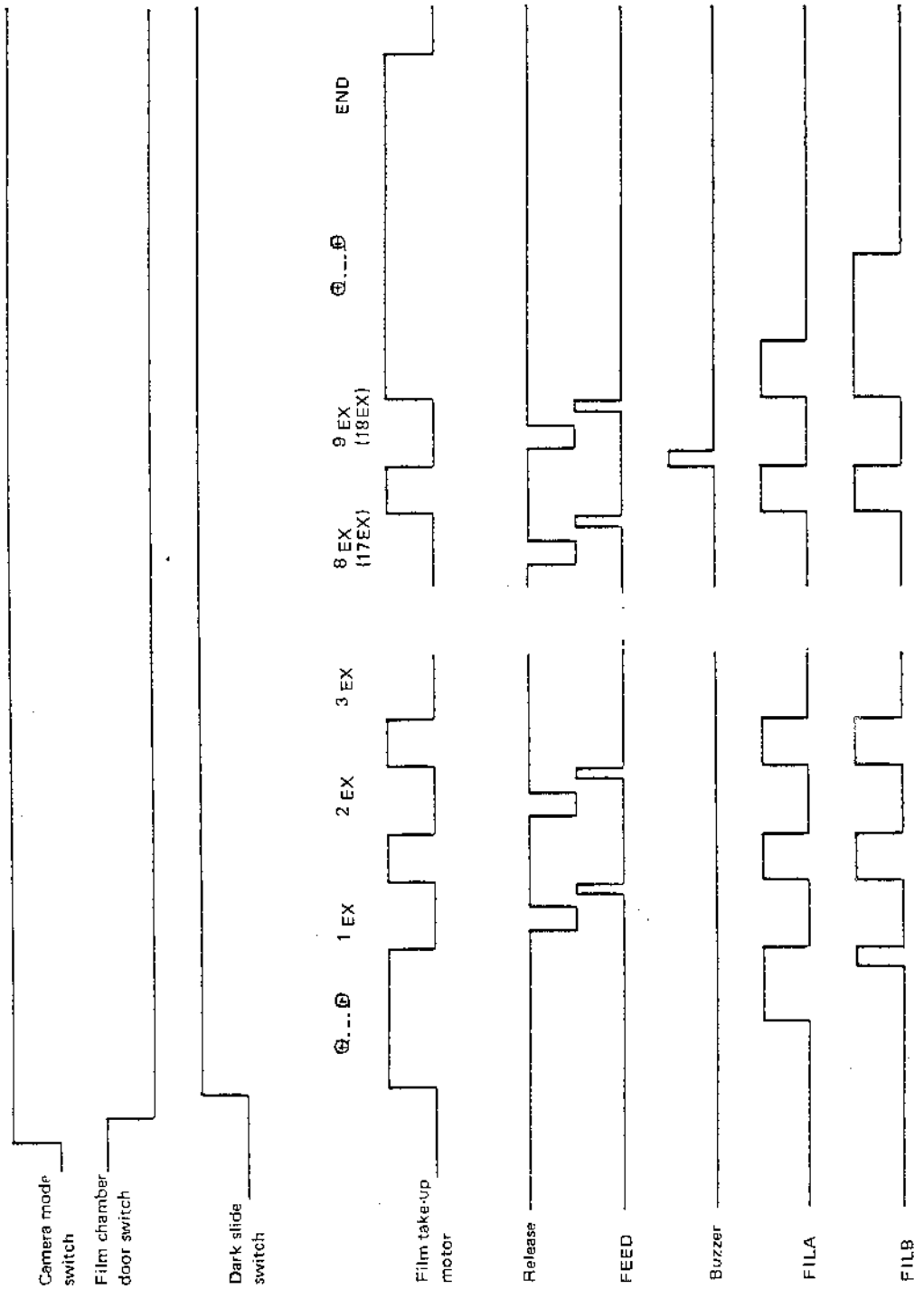
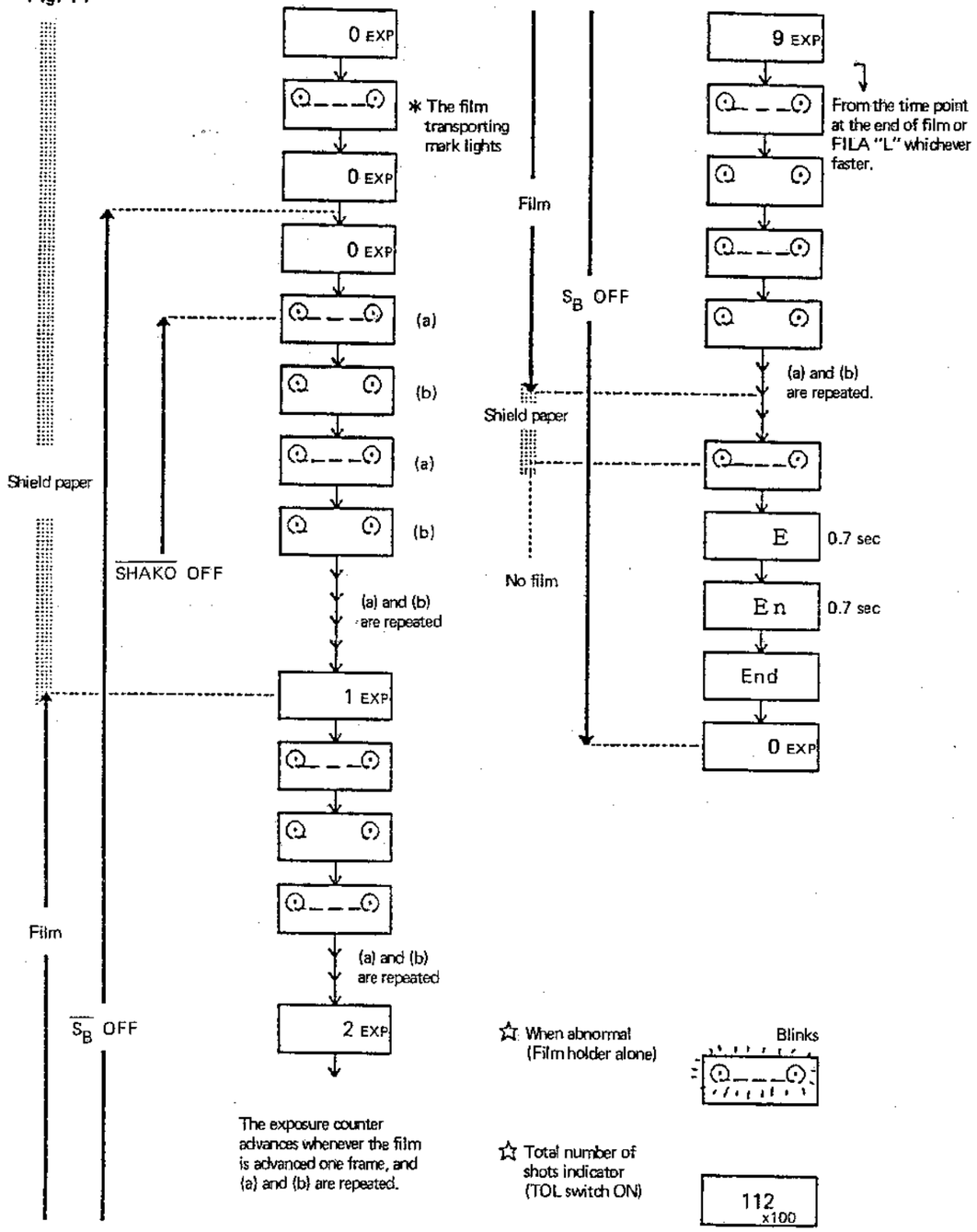


Fig. 13

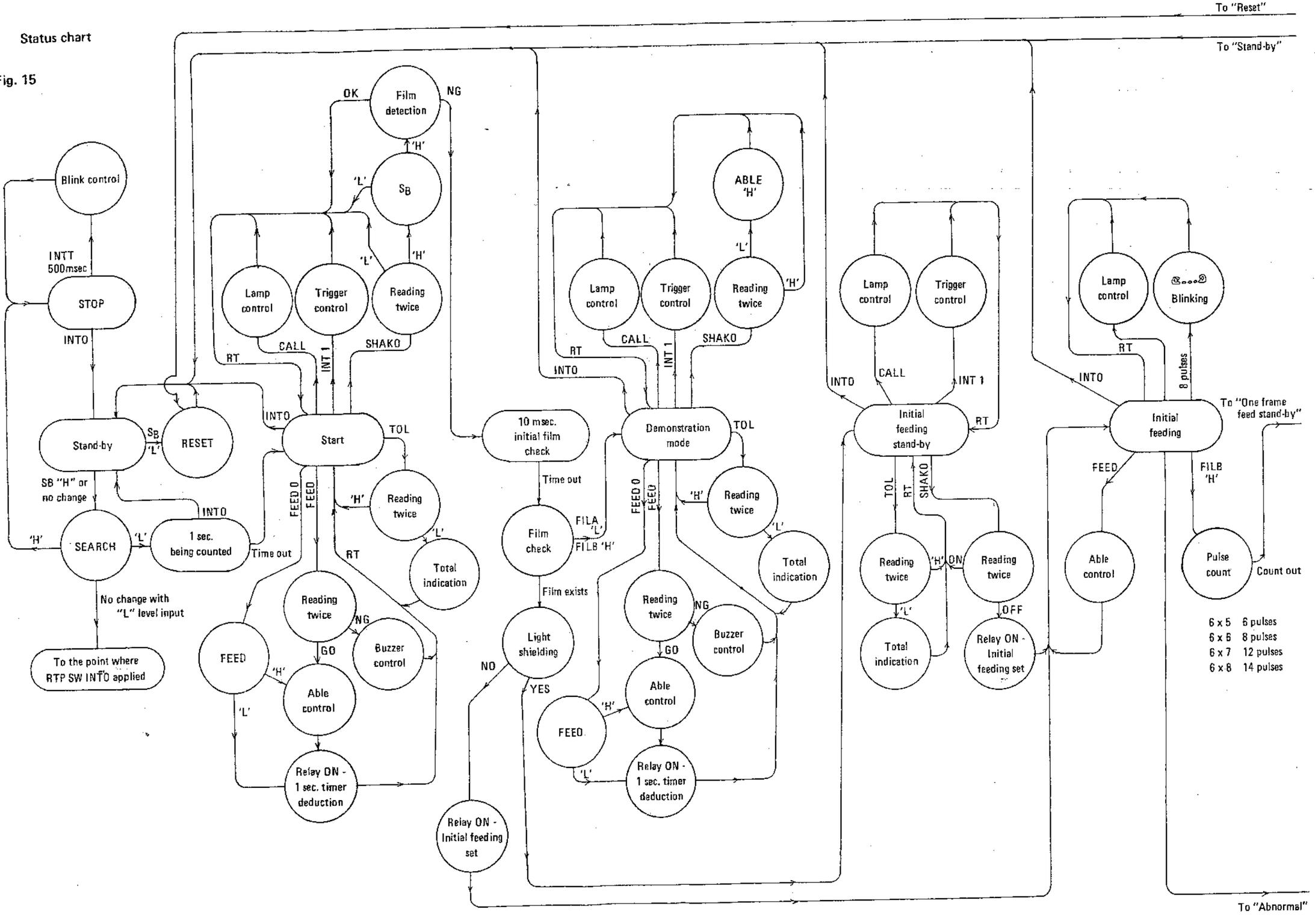
5. Flow chart of LCD display

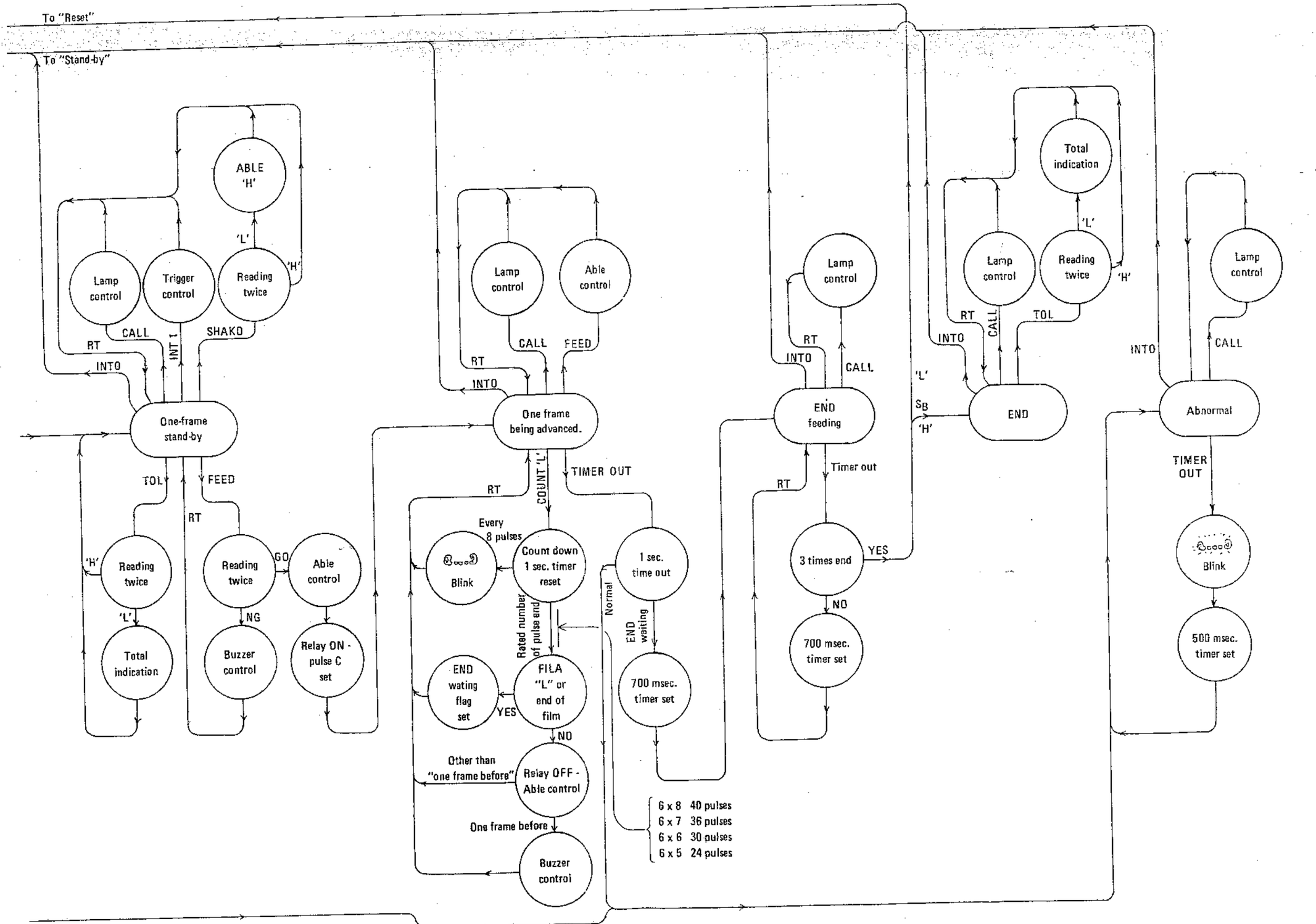
Fig. 14



6. Status chart

Fig. 15




To "Reset"
To "Stand-by"
ABLE 'H'
'L'
'H'
Lamp control
Trigger control
Reading twice
CALL
INT 1
SHAKO
RT
INTO
One-frame stand-by
TOL
FEED
RT
'H'
Reading twice
'L'
Total indication
Reading twice
GO
NG
Able control
Buzzer control
Relay ON - pulse C set
Lamp control
Able control
CALL
FEED
RT
INTO
One frame being advanced.
COUNT 'L'
TIMER OUT
Every 8 pulses
Blink
Count down 1 sec. timer reset
Rated number of pulse end
FILA "L" or end of film
YES
NO
END wating flag set
Other than "one frame before"
Relay OFF - Able control
One frame before
Buzzer control
1 sec. time out
Normal
END waiting
700 msec. timer set
6 x 8 40 pulses
6 x 7 36 pulses
6 x 6 30 pulses
6 x 5 24 pulses
Lamp control
RT
INTO
CALL
END feeding
Timer out
RT
3 times end
YES
NO
700 msec. timer set
Total indication
'L'
Lamp control
Reading twice
'H'
RT
CALL
TOL
INTO
'L'
SB
'H'
END
Lamp control
INTO
CALL
Abnormal
TIMER OUT
Blink
500 msec. timer set

7. Input/output descriptions for CPU (FG680)

(1) V_{DD}: Power supply line to the microcomputer. When the film holder is mounted on the camera, 5V is supplied through a stabilized voltage regulator.
When the film holder is dismounted from the camera, the built-in lithium battery supplies back-up power.

(2) GND: Common ground for Vsso of the microcomputer and GND of the camera

(3) Input signals

a) INTO : External interrupt input terminal
(+) pulse is input when the film holder is mounted on the camera, dismounted and when S_B switch turns on.

b) $\overline{\text{CALL}}$: LCD lamp control terminal
A mechanical switch which is shorted with the ground when inputing lamp.

c) COUNT : Film transporting pulse input terminal. A photocoupler is used.

d) FILA : Film end detecting signal (A)
"H" level signal is input when the film is in the position of photocoupler (A).

e) FILB : Film end detecting signal (B)
"H" level signal is input when the film is in the position of photocoupler (B).

f) FILM : Film existence detecting signal
"H" level signal is input when a film exists.

g) $\overline{\text{SHAKO}}$: Dark slide detecting terminal
A mechanical switch which is shorted with the ground when a dark slide is inserted.

h) $\overline{S_B}$: Film chamber door detecting terminal
A mechanical switch which is shorted with the ground when the film chamber door is open.

i) DATA : Data back cartridge detecting terminal
When the cartridge has not data back, "L" level signal is input and printing starts as

j) FEED : Film take-up signal

k) $\overline{\text{SPACE 0}}$: Type of film and feeding width detecting switch terminal

$\overline{\text{SPACE 3}}$: This signal is read when reseting, and type of film, feeding width, number of counted pulses and number of frames are checked.

SPACE				HEX	Type of film	Feeding width	Number of frames	Number of counted pulses	Number of initial feeding pulses.
3	2	1	0						
0	0	0	0	0	120	6 x 8	9	40	14
0	0	0	1	1	120	6 x 7	10	36	12
0	0	1	0	2	120	6 x 6	12	30	8
0	0	1	1	3	120	6 4 5	15	23	6
0	1	0	0	4	220	6 x 8	18	40	14
0	1	0	1	5	220	6 x 7	20	36	12
0	1	1	0	6	220	6 x 6	24	30	8
0	1	1	1	7	220	6 4 5	30	23	6

l) SEARCH : If the film holder is mounted on the camera or not is detected.
"L" level signal is input when the film holder is mounted on the camera.

m) $\overline{\text{TOL}}$: Exposure counter switchover detecting terminal
When level at this terminal "L", indication on the LCD is switched over to the total counter.

(4) Output signals

a) $\overline{ABLE}$: "Able to take picture" signal output terminal
Level at this terminal becomes "L" when cartridge is prepared completely.

b) RELAY 1 : Relay signal for film take-up motor - For forward

c) RELAY 2 : Relay signal for film take-up motor - For reverse

d) PCB *1 : PCV buzzer drive output terminal

e) $\overline{PTC}$: Terminal to supply power to the photocoupler. Level at this terminal becomes "L" when the photocoupler detects.

f) TRIG : Data printing flash trigger output terminal

g) $\overline{LCD}$: Output terminal which controls LCD drive voltage
Monitors if the CPU is RUN or STANDBY - RUN = "L".

h) LAMP : LCD illumination lamp output terminal

(5) LCD output terminal

a) S3 ~ S11 : Segment outputs

b) COM0 ~ COM2 : Common outputs

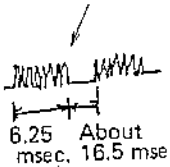
(6) Clock terminal

a) CLL, CL2 : System clock generating terminal
f_{sys} = 70±1% [KHZ]

b) X1, X2 : Terminal to generate clock for timer
X-TAL = 32.768 [KHZ]

*1 Buzzer frequency

	Buzzer frequency	Modulation frequency	Number of times
① Last frame buzzer	1 KHz	3 KHz	6
② Abnormal warning buzzer	3.5 KHz	12.7 Hz	38



8. Connector pins to be connected to the camera and signals

(1) Layout of each pin and signal name

Total 14 pins are used and these pins are paired to seven sets.

In Fig. 16, ⓐ and ⓑ respectively indicate the horizontal and vertical positions at which the pins come into contact with the camera side pins.

Positions ⓐ and ⓑ are symmetrically related. Each pin name and function are indicated below

Pin name

① Vcc : Terminal to supply (+) power from the camera. (For details, refer to the Manual for the Camera.)
NiCd or DC power voltage is applied.

② JOINT : Camera operation checking terminal (For details, refer to the Manual for the Camera.)
When operating: "L" When not operating: Open collector (NPN)

③ ISO : Film speed (ISO) data output terminal (For details, refer to the Manual for the Camera.)
This signal is output only when the film holder is mounted on the camera and the main switch turns on.

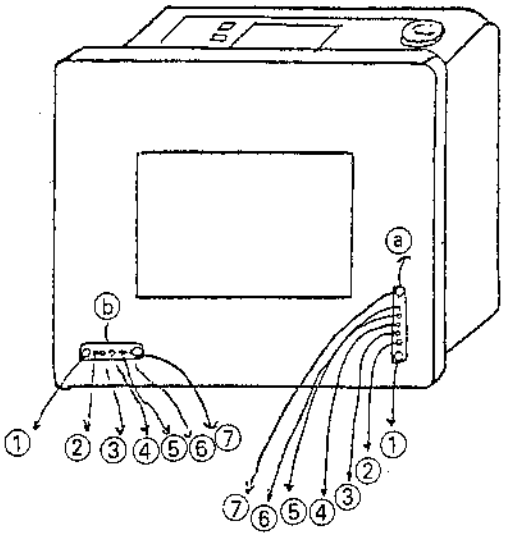
④ DATA : Data printing signal input terminal - Will be used when a data printer is attached as an option.

⑤ ABLE : Film holder preparation status output terminal
"Able to take picture": "H" "Not able to take picture": "L"

⑥ FEED : Film take-up signal input terminal
Camera abnormal signal input terminal

⑦ GND : Camera ground terminal - Electrically connected to revolver and film base.

Fig. 16

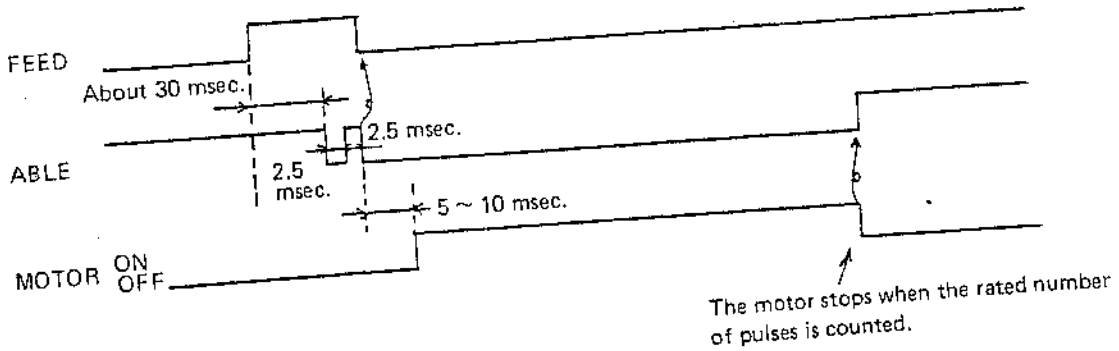


(2) FEED and ABLE signals

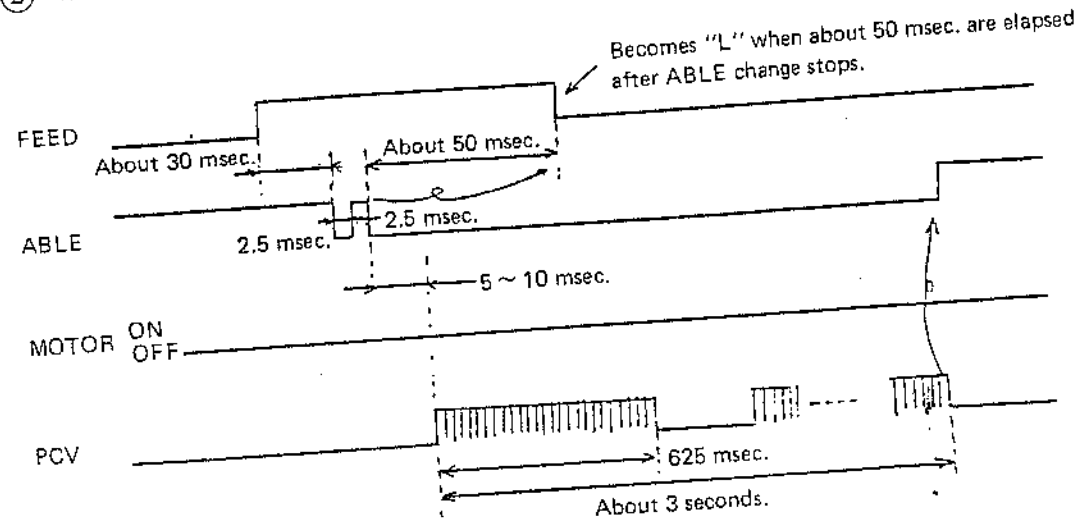
When an abnormal condition occurs on the camera, the OK monitor alternately blinks. At the same time, the film holder generates warning sound by PCV. With FEED and ABLE signals input/output, the CPU makes judgement. When FEED pulse is short, the CPU judges it to be film take-up signal, or when FEED pulse is long, the CPU judges it to be camera trouble.

The timing chart is shown in the next page.

① When film is taken up normally



② When the camera is abnromal



When FEED "H" is input, the CPU informs the camera that the CPU has read this signal. As for the method, ABLE is changed three times in ⌐¬⌐¬⌐ 2.5 msec. interval. From the time point where this ABLE signal is output, FEED signal is rechecked 5 msec. later, and when the level is "L", the CPU judges it to be a film take-up signal, power is supplied to the photocoupler and relay, and thus, the film is advanced for the rated number of pulses. When level of FEED signal is still "H" even after 5 msec., the CPU judges it to be camera abnormal, and 3 second abnormal warning buzzer is generated.

(3) Occurrence when each pin is in a poor contact

① V_{DD} : The LCD does not light and does not operate at all when the main switch turns on. (◯ x100 will also be displayed)
LCD lights when CALL switch is turned on.

② JOINT : The LCD does not light and does not operate at all when the main switch turns on.
The LCD lights when CALL switch is turned on.

③ ISO : The film is not fed when the FEED button is depressed at multiple mode. (At demonstration mode single frame only)
The exposure monitor does not operate normally.

④ DATA : Data are not printed.

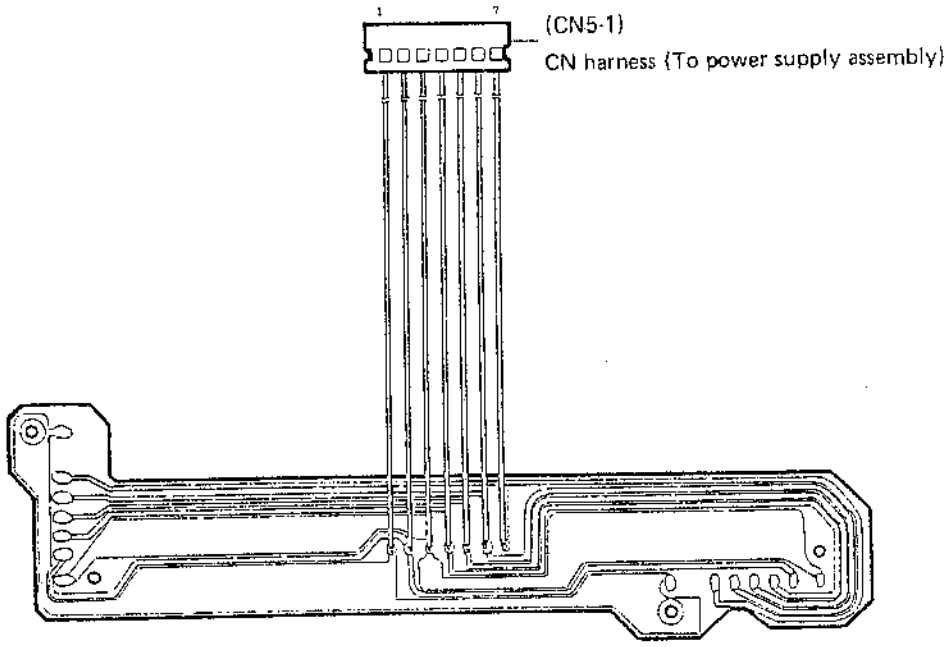
⑤ ABLE : The OK monitor does not become OK. - The camera cannot be operated.

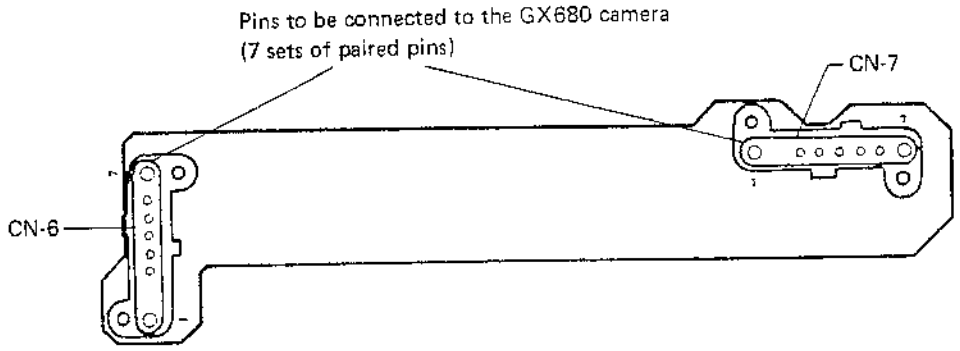
⑥ FEED : The film is not taken up. The camera abnormal buzzer does not sound.

⑦ GND : The LCD does not light and does not operate at all when the main switch turns on.
The LCD lights when CALL switch is turned on.

CONNECTOR ASSEMBLY

Fig. 17



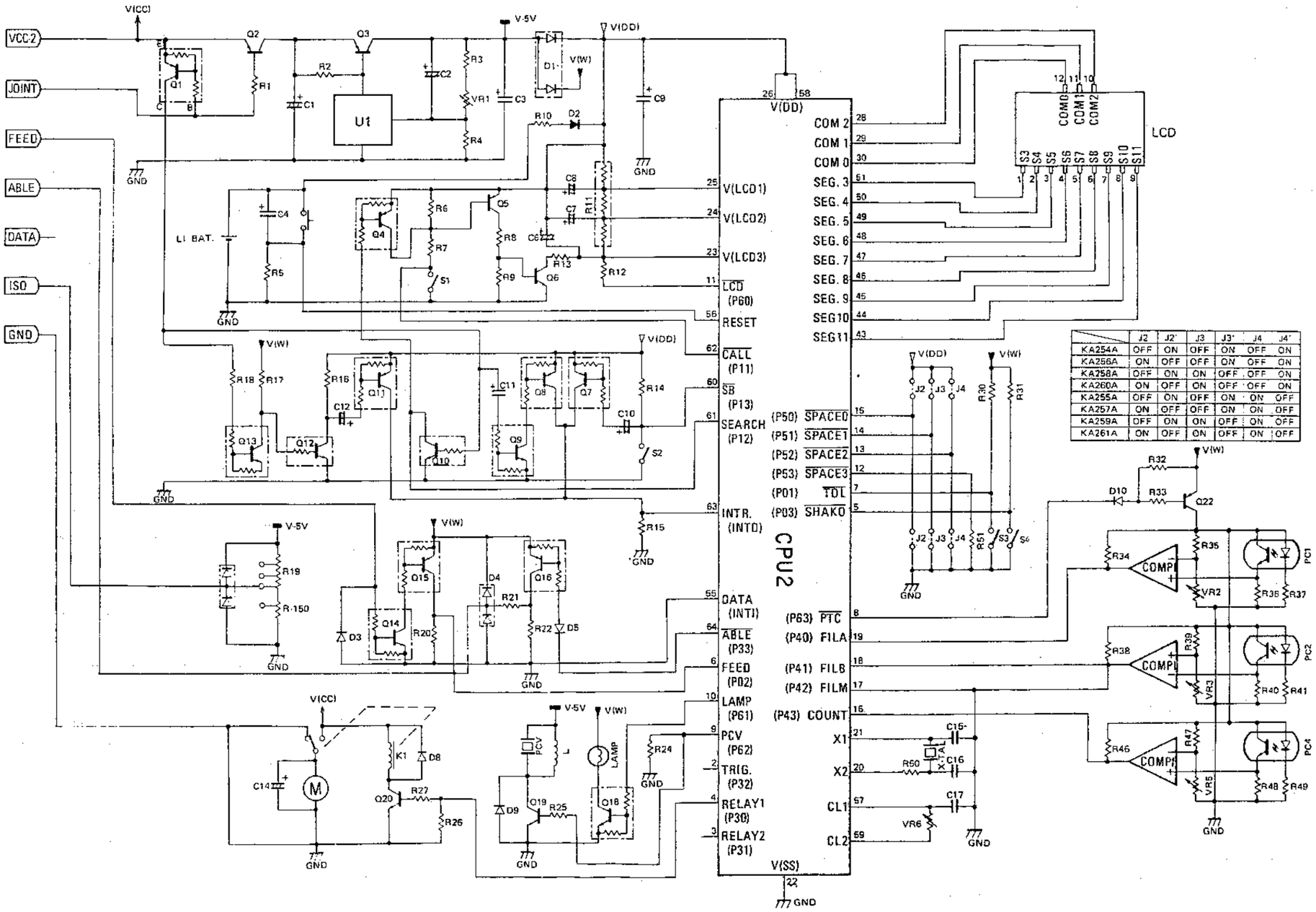


(CN5-1)		(CN-6)		(CN-7)	
1	GND	1	GND	1	GND
2	JOINT	2	FEED	2	FEED
3	Vcc-2	3	ABLE	3	ABLE
4	ISO	4	DATA	4	DATA
5	DATA	5	ISO	5	ISO
6	ABLE	6	JOINT	6	JOINT
7	FEED	7	Vcc-2	7	Vcc-2

9. Film holder circuit diagram

(1) Overall circuit diagram

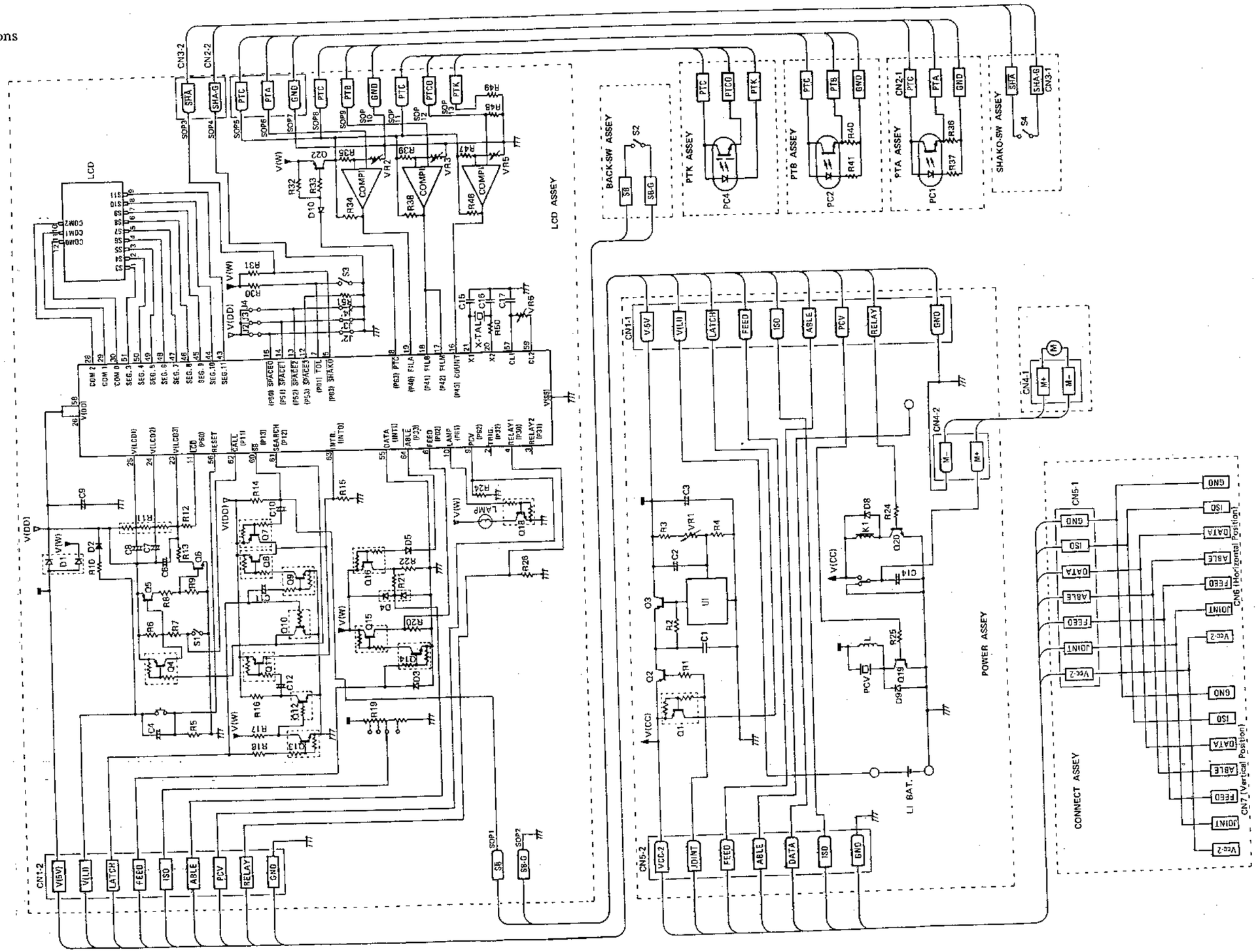
Fig. 18



	J2	J2'	J3	J3'	J4	J4'
KA254A	OFF	ON	OFF	ON	OFF	ON
KA256A	ON	OFF	OFF	ON	OFF	ON
KA258A	OFF	ON	ON	OFF	OFF	ON
KA260A	ON	OFF	ON	OFF	OFF	ON
KA255A	OFF	ON	OFF	ON	ON	OFF
KA257A	ON	OFF	OFF	ON	ON	OFF
KA259A	OFF	ON	ON	OFF	ON	OFF
KA261A	ON	OFF	ON	OFF	ON	OFF

(2) Assembly connections

Fig. 19



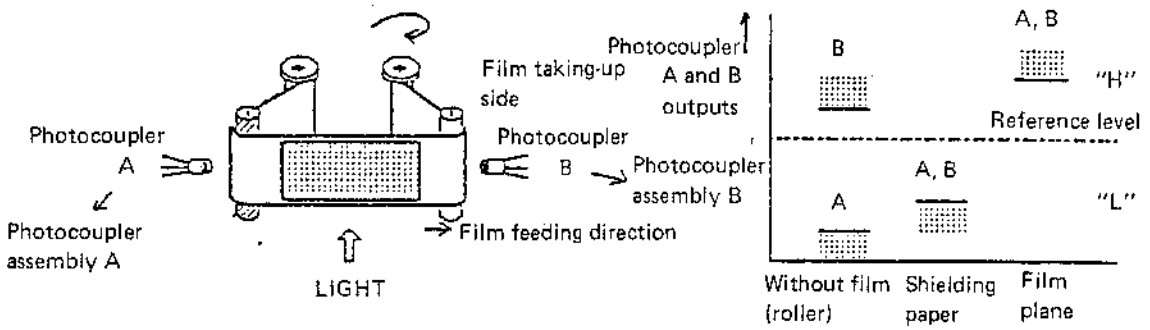
10. Film holder circuit description

(1) Film reflection ratio data

a) Photocoupler data (FILA, FILB) at each status of the film holder

To obtain film data within the film holder, two reflectors (PTA and PTB) are used. Output of the reflector is wave-shaped by the comparator (COMP1) and shaped up signal is input to the microcomputer. To these reflectors and comparator, power is supplied from Vw through Q22. The power is supplied only when required to save energy.

Fig. 20



☆ Existence or non-existence of film is judged by comparing A and B outputs. In other words, when A = "L" and B = "H", it is judged that film does not exist.

The above figure indicates output values at each film status and relative positions between PTA and PTB.

The PTA is placed in the position opposing to the film supplying roller (black) side, and PTB is opposed to the film taking up roller (white) side.

Output voltages of PTA and PTB are low when shielding paper is passing through, and high when the film is passing (including tape).

When no film is loaded (in other words, when only inner frame exists), PTA and PTB becomes "L" and "H" respectively.

The "H" and "L" detecting levels can be varied by VR2 and VR3 because sensitivities of the reflectors fluctuate.

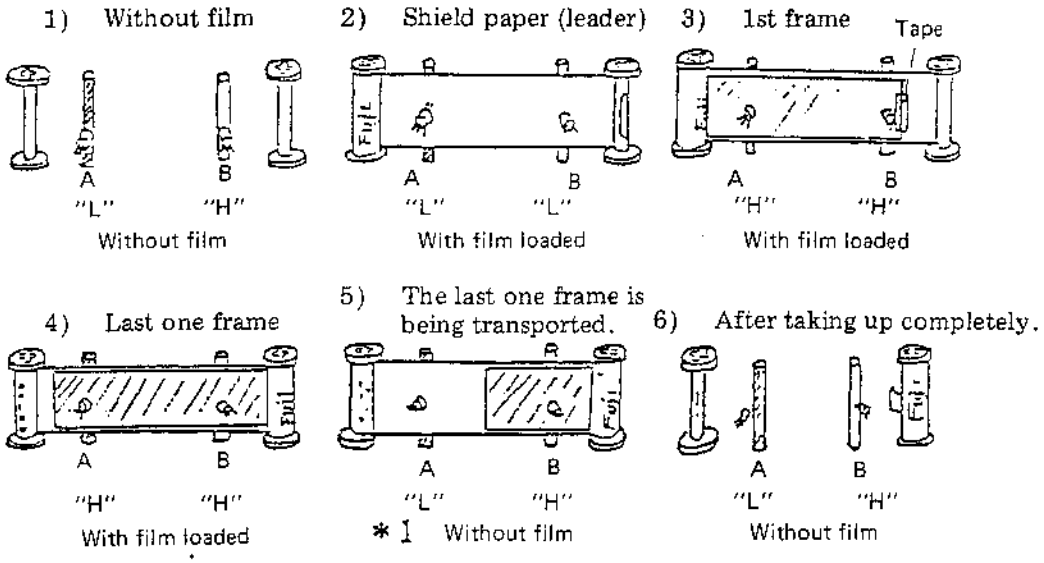
Level setting values are adjusted as indicated below.

- PTA: About 3 times as great as shielding paper level
- PTB: About 1/2 times as great as taking up side roller

Output levels of PTA and PTB at each film status are indicated Fig. 21.

Fig. 21

SIGNAL AT EACH STATE



SIG / STATE	FILA	FILB	FILM	Exposure counter
Film set	L	L	*2 H	0
↓	↓	L	H	Film transport-ing mark
↓	H	↓	H	↓
1st frame	H	H	H	1
↓	↓	↓	↓	INC.
nth frame	H	H	H	n
↓	↓	H	H → L	Film transport-ing mark
↓	L	↓	L → H	↓
↓	L	L	H	↓
Without film	L	H	L	End

*1 This period is saved by means of a software

*2 "H" denotes "Film exists"

When the film chamber door is opened, a film is loaded and the film chamber door is closed, level at terminal PTC of the CPU becomes "L" for about 10 msec., causing Q22 to turn on, power is supplied to PTA, PTB, and COMP1, and it is checked if a film exists or not. When a film is loaded, levels at PTA and PTB are both "L", and in this case, initial film feeding (1st frame set) is made.

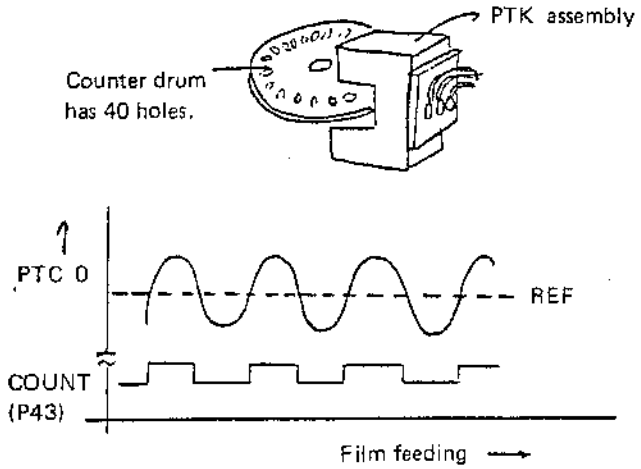
When no film is loaded, levels at PTA and PTB become "L" and "H" respectively. Then, it is judged that no film exists and demonstration mode is realized.

During the initial film feeding period, the tape which fixes the shielding paper (leader) on the film passes through PTB. Then, output of PTB rises. This signal level rising is detected, the film is fed for the predetermined length, and thus, the 1st frame is set. Hereinafter, the film is fed one frame by one frame whenever a FEED signal is input from the camera. Further, whenever the film is advanced one frame, output of PTA is checked at each time. When the level becomes "L" or actual number of frames reaches the number of frames fixed in the CPU memory, END feeding begins at whichever faster timing, and thus, the film is taken up to the end.

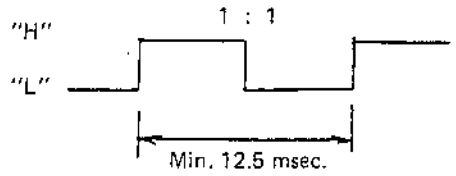
b) Film feeding length data (PTK)

A drum which turns once per frame is interlocked with the film feeding side roller rotations, and film feeding length is controlled by counting number of holes drilled on the drum. There are 40 holes are drilled on the drum, and power is supplied to the photointerrupter in the same timing as the photocouplers PTA and PTB.
The output signal (PTC0) appears on the sine wave as shown in Fig. 22 although it differs depending on a sensitivity of the PTK. Waveform of this input is shaped by COMP1, and square wave is input to the CPU.

Fig. 22



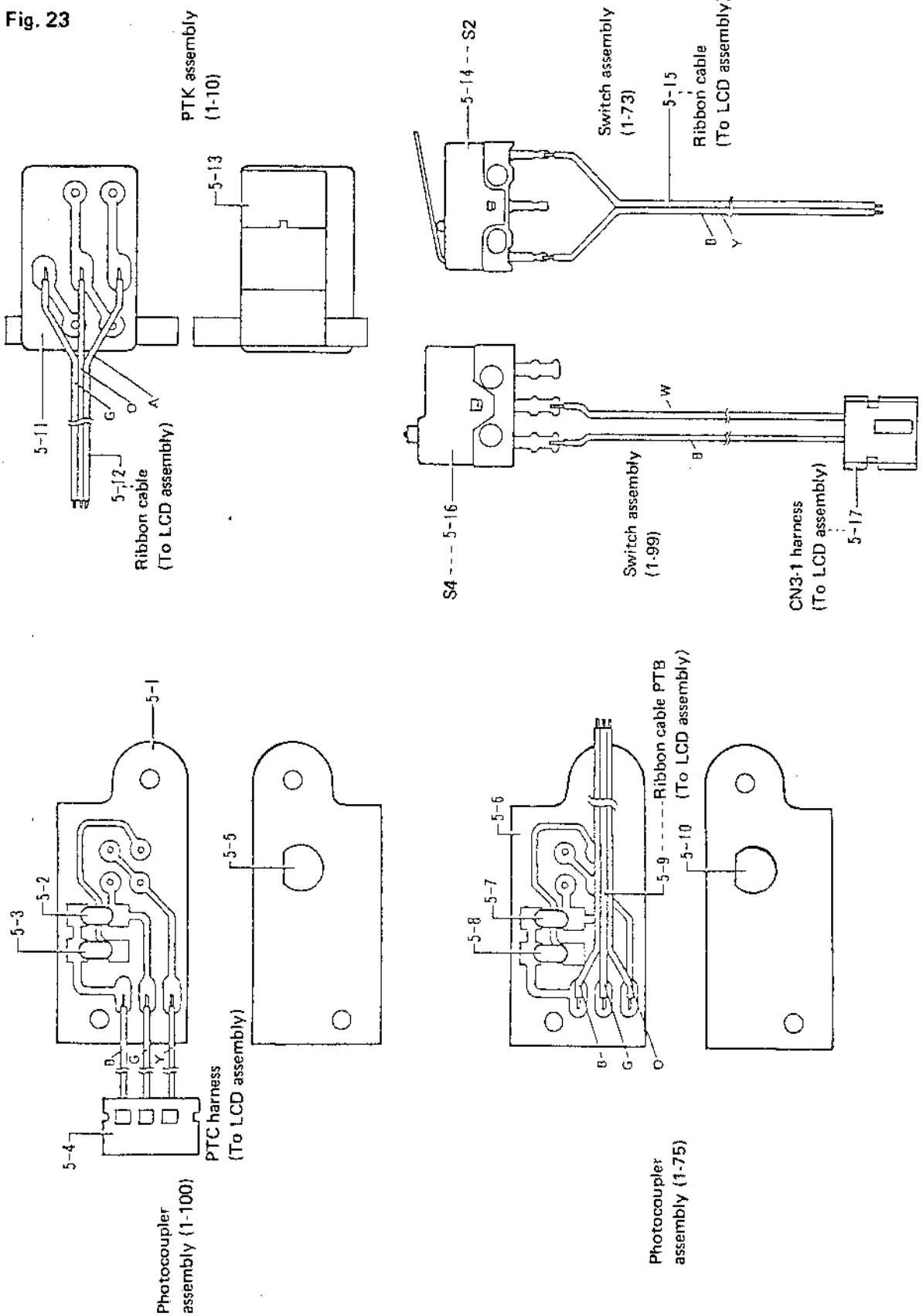
A chattering occurred by the counter drum is taken into consideration, 12.5 msec or longer time is required by the CPU to read the signal. (However, when input time ratio between "H" and "L" is 1 : 1)



When the time is shorter than this, the CPU judges it to be a noise and CPU does not read the pulse. For this reason, duty ratio is adjusted to 50% by changing reference level with variable resistor. One frame feeding length and 1st frame setting length are decided by a number of pulses. When pulse does not change for one second and the film is exposed once (shutter is released once), END is detected, and in this case, it is judged that the film feeding was abnormal.

Each swict and assembly connection

Fig. 23

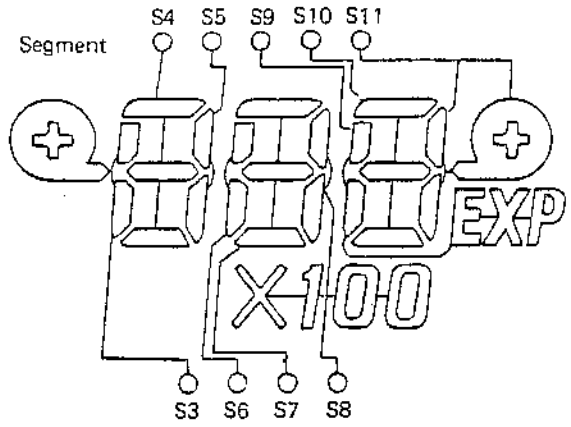


(2) Driving LCD

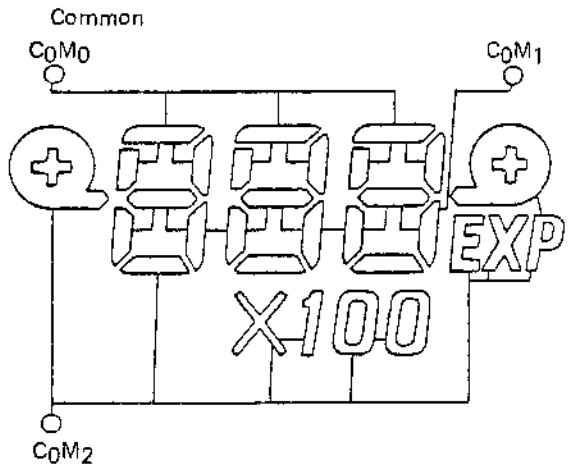
The Liquid Crystal Display (LCD) used for GX680 has 25 segments of display elements, and displays number of exposures, total number of shots (100 digit unit) and film transporting. The display is made by the LCD driver built in the CPU. The system is of a 1/3 duty 1/3 bias type reducing number of pins coming out from the LCD.

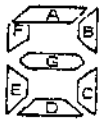
The individual segments are connected as shown in Fig. 24.

Fig. 24



SEGMENT NO	COM0	COM1	COM2
3	1F	1E	
4	1A	1G	1D
5	1B	1C	—
6	2F	2E	—
7	2A	2G	2D
8	2B	2C	x100
9	3F	3E	EXP
10	3A	3G	3D
11	3B	3C	

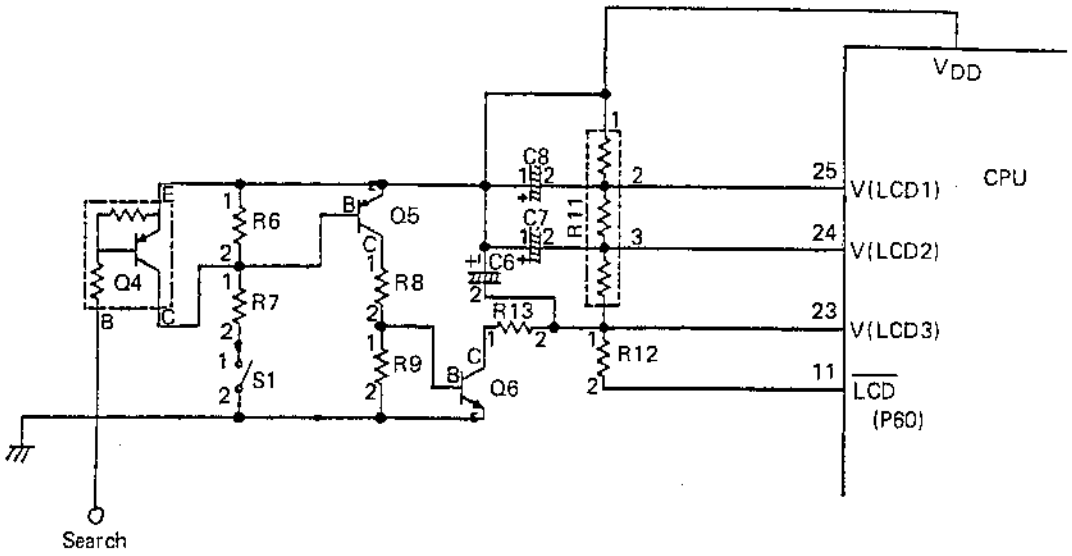


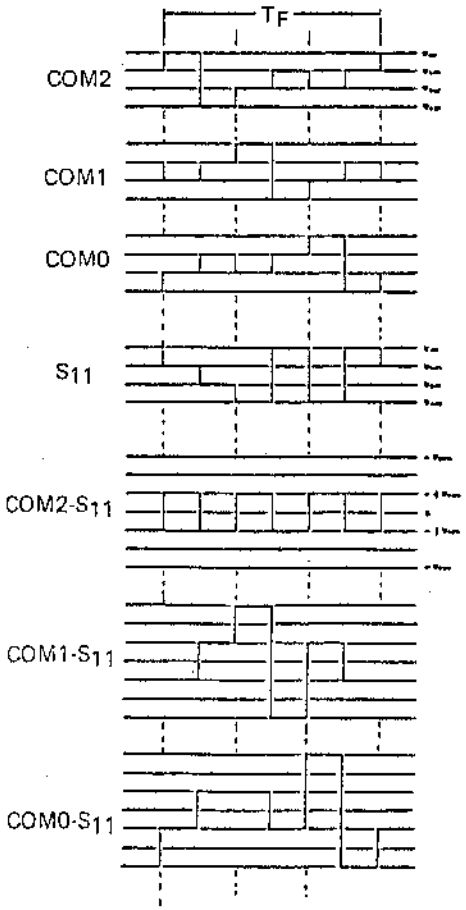


The LCD is a twistnematic system reflector type LCD. Liquid crystal is held in between the top and bottom glasses. Reflection is blocked by applying voltage to both ends of the liquid crystal, and black display is made. For example, to display number "1" in black, voltage are applied across S-11 and COM0.

Voltage applications are changed over by selecting analogue multiplexer within the CPU. The reference voltage generating portions are indicated below.

Fig. 25


VDD
CPU
25
V(LCD1)
24
V(LCD2)
23
V(LCD3)
11
LCD
(P60)
R6
R7
R8
R9
R11
R12
R13
C6
C7
C8
Q4
Q5
Q6
S1
Search


TF
COM2
COM1
COM0
S11
COM2-S11
COM1-S11
COM0-S11

There are three reference voltage input terminals, V(LCD1) through V(LCD3), and V_{DD} - V(LCD3) is divided into three by V(LCD1) and V(LCD2).

To V_{DD}, about 4.4V is supplied from the 5V regulator when the film holder is mounted on the camera and main switch (SW1) on the camera has turned on. In this case, voltage is made through the circuit V_{DD} → R11 → R12 → $\overline{LCD}$ terminal.

When the film holder is not mounted on the camera, the LCD does not light because voltage is not applied to V(LCD1) ~ V(LCD3), and at this time, level at terminal $\overline{LCD}$ is "H". When CALL button (S1 switch) is pressed, level at the collector of Q6 becomes "L" through the circuit R7 → Q5 → R8 → Q6, and voltage is applied via V_{DD} → R11 → R13.

When this voltage is applied, the voltage is changed over by the analogue multiplexer in the frame frequency (TF ≒ 170 Hz) decided by the oscillation frequency of X-TAL, and the changed over voltage is output to each terminal.

The waveform shown here applies when displaying "1", and the display is made by dividing one frame into three (timingwise).

From terminal COM, voltage of one segment (V_{DD}-V(LCD3)) is output in the timing divided into three, and for the remaining 2 segments, voltage of 1/3 (V_{DD}-V(LCD3)) is output.

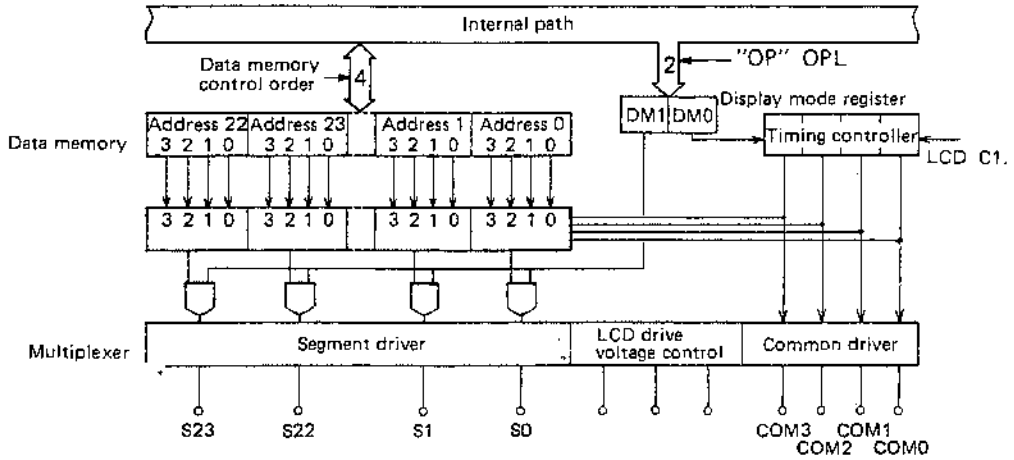
Segments in which (V_{DD}-V(LCD3)) are applied are sequentially changed over by COM0-2.

For segment terminals, being synchronized with COM terminal, COM terminals desired to be lighting output voltages of (V_{DD}-V9LCD3)) for the segments of (V_{DD}-V(LCD3)), and for other segments, 1/3 (V_{DD}-V(LCD3)) is output.

In the above shown waveforms, from S11, voltage of (2 segments) (V_{DD}-V(LCD3)) is output when COM1, 0 are in timing of (V_{DD}-V(LCD3)), and voltage of 1/3(V_{DD}-V(LCD3)) is output when COM2 is in timing of (V_{DD}-V(LCD3)).

The voltage across COM and SEGMENT causes the patterns of COM1-S11 and COM0-S11 to be selected within one frame, and thus, these patterns light.

Fig. 26



As described above, for other segments also, they are synchronized and selected by matching with COM terminal.

In the above shown circuit diagram, eight capacitors C6~C8 (0.01 μF) are used to stabilize the applied voltage. When the film holder is mounted on the camera and main switch (SW1) on the camera has turned on, level at $\overline{LCD}$ is "L", and at this time, when CALL button (S1 switch) is raised, Q6 turns on causing the voltage applied to V(LCD1) ~ V(LCD3) to be abnormal. Therefore, when the film holder is mounted on the camera and main switch (SW1) on the camera has turned on, level at SEARCH terminal becomes "L", causing Q4 to turn on. Then Q5 is inhibited so that the Q6 will not turn on.

(3) Interrupting system

Operations and functions of the CPU (FG680)

The film holder has two modes, RUN mode and STANDBY mode. The film holder is under RUN mode when the film holder is mounted on the camera and main switch (SW1) on the camera has turned on. When the film holder is dismounted from the camera (LCD turns off, and LCD turns on as CALL button (S1 switch) is pressed are also included), the film holder is under STANDBY mode.

The following table shows status of each electrical part under these two modes.

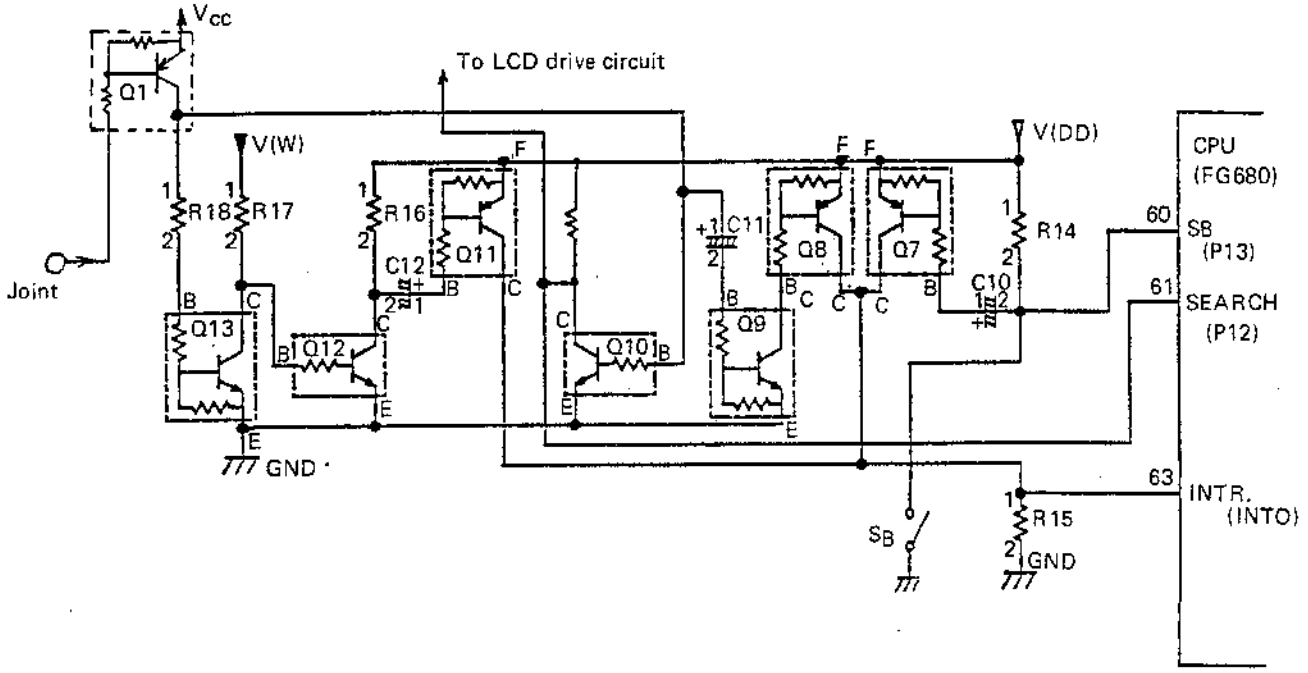
	Mode / Each part	RUN mode (Mounted on the camera and main switch on the camera has turned on)	STANDBY mode	
			Mounted on the camera but the main switch has turned off.	Dismounted from the camera
Power supply system	Vcc	6~8V (Camera power supply)	6~8V (Camera power supply)	0V
	V_{DD}	4.4V (5V − 1 diode)	3.6V (Lithium)	3.6V (Lithium)
	Vw	4.4V (5V − 1 diode)	0V	0V
	CL	Oscillation (70 KHz)	Stop (Oscillates for about 1 msec once every 500 msec.)	Stop (Oscillates for about 1 msec once every 500 msec.)
	X-TAL	Oscillation	Oscillation	Oscillation
	LCD	ON	OFF (Turns on when CALL switch is turned on)	OFF (Turns on when CALL switch is turned on)
	Circuit	All functions	Interrupting circuit only	Interrupting circuit only

Vcc denotes the primary power supplied from the battery or from DC power supply via one switch, and this power is supplied to the 5V regulator circuit (within the power supply assembly), motor drive system and interruption signal generator circuit. Vcc is supplied when the film holder is mounted on the camera regardless of whether the main switch (SW1) on the camera is turned on or off.

V_{DD} denotes power supply line of the CPU. Under the RUN mode, this power is supplied from 5V regulator via D1 (5V − 1 diode ≒ 4.4V), and under the STANDBY mode, this power is supplied from the lithium battery viz R10 and D2.

Vw is the power source for the photocouplers, lamp, buzzer, the interface circuit with the camera, switch assembly (1-73) and switch assembly (1-99), and only when the film holder is mounted on the camera and the main switch on the camera is turned on, (about 5V — 1 diode = 4.4V) is supplied from the 5V regulator via D1.

Fig. 27



With the above shown interrupting circuit, signals are made, the signals are input to the CPU (FG680) of the film holder, and thus, the CPU controls changeover from the RUN mode to STANDBY mode or from the STANDBY mode to RUN mode.

There are three sources of interruption; camera operating status changes (JOINT "H" to "L" or "L" to "H") and film chamber door change from CLOSE to OPEN. When one of these three changes occurs, an interruption pulse is generated, the CPU operations are interrupted from terminal INTR of the CPU (FG680), and the CPU judges the source of the interruption.

As for the signal with which the CPU makes judgement, there are two lines of signal; SHARCH for the camera operation and SB for film chamber door. When an interruption is made on terminal INTR, the operating mode changes as indicated below.

SEARCH	When "L"	-------->	To RUN mode
SEARCH	When "H"	-------->	To STANDBY mode
SB	When "L"	-------->	Reset

When the film holder is mounted on the camera and the main switch on the camera has turned off, level of JOINT is "H" and Q1 has turned off. Consequently, transistors Q8 through Q13 turn off, capacitors C11 and C12 are discharged, and level of SEARCH signal becomes "H".

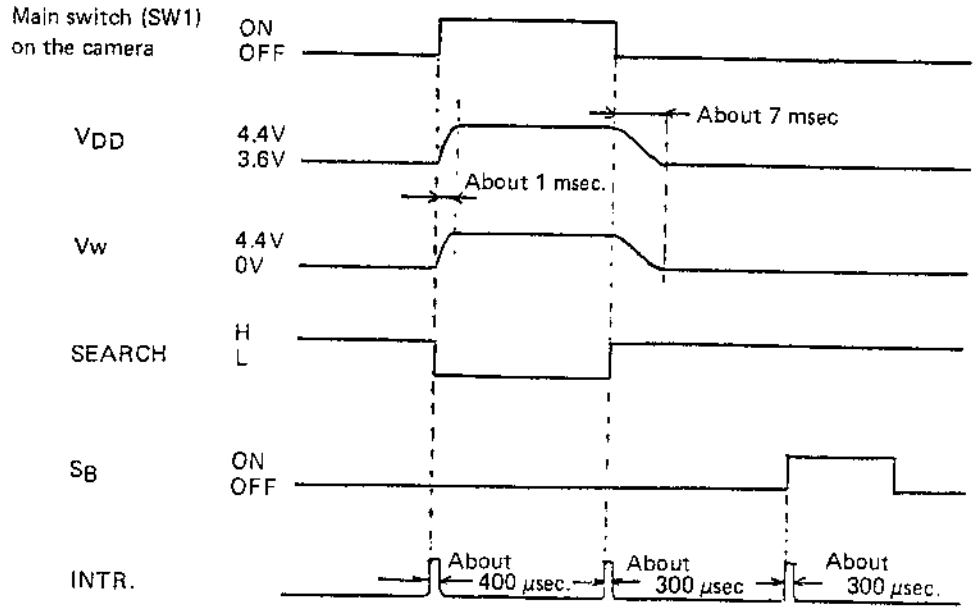
When the main switch (SW1) on the camera is turned on under this condition, level of JOINT becomes "L", Q1 turns on, transistors Q13 and Q10 turn on, transistors Q9 and Q8 turn on for the time (about 400 μsec) made by the capacitor C11, and thus, a pulse is generated on R15. At this time, level of SEARCH signal is "L".

Next, when the main switch (SW1) on the camera is turned off, level of JOINT signal becomes "H", causing Q1 to turn off and each transistor turns off. However, as soon as Q13 turns off, Q12 turns on as long as Vw is supplied, Q11 turns on for the time (about 300 μsec.) made by C12, and a pulse is generated on R15. At this time, level of SEARCH signal is "H".

When the film chamber door condition changes from CLOSE to OPEN, SB turns on and a pulse is generated on R15 for the time (about 300 μsec) made by C10 regardless of whether the film holder is mounted on the camera or not, or whether the main switch (SW1) on the camera has turned on or off. At this time, level of SB is "L".

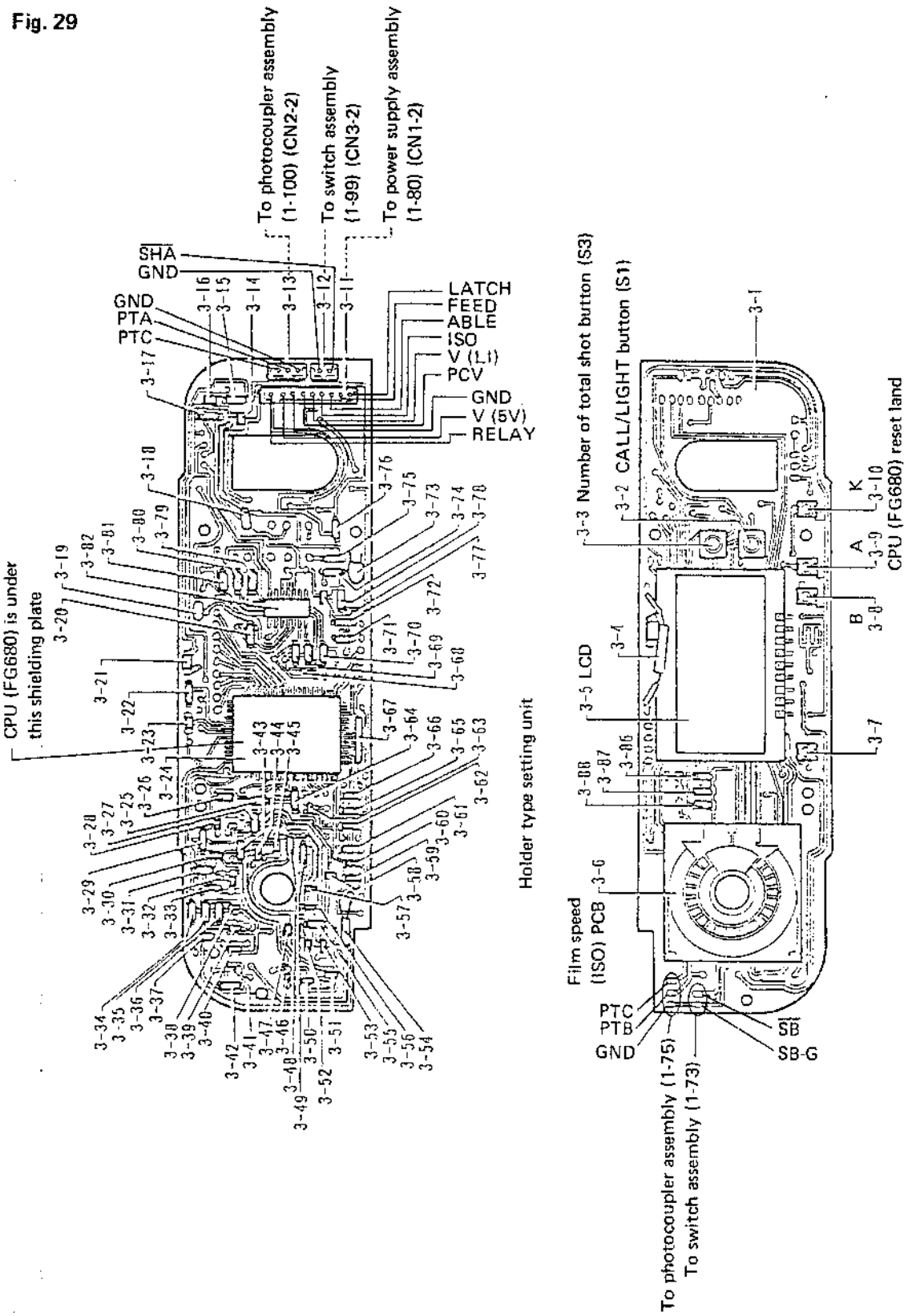
The timing of the above described operations is shown in Fig. 28.

Fig. 28



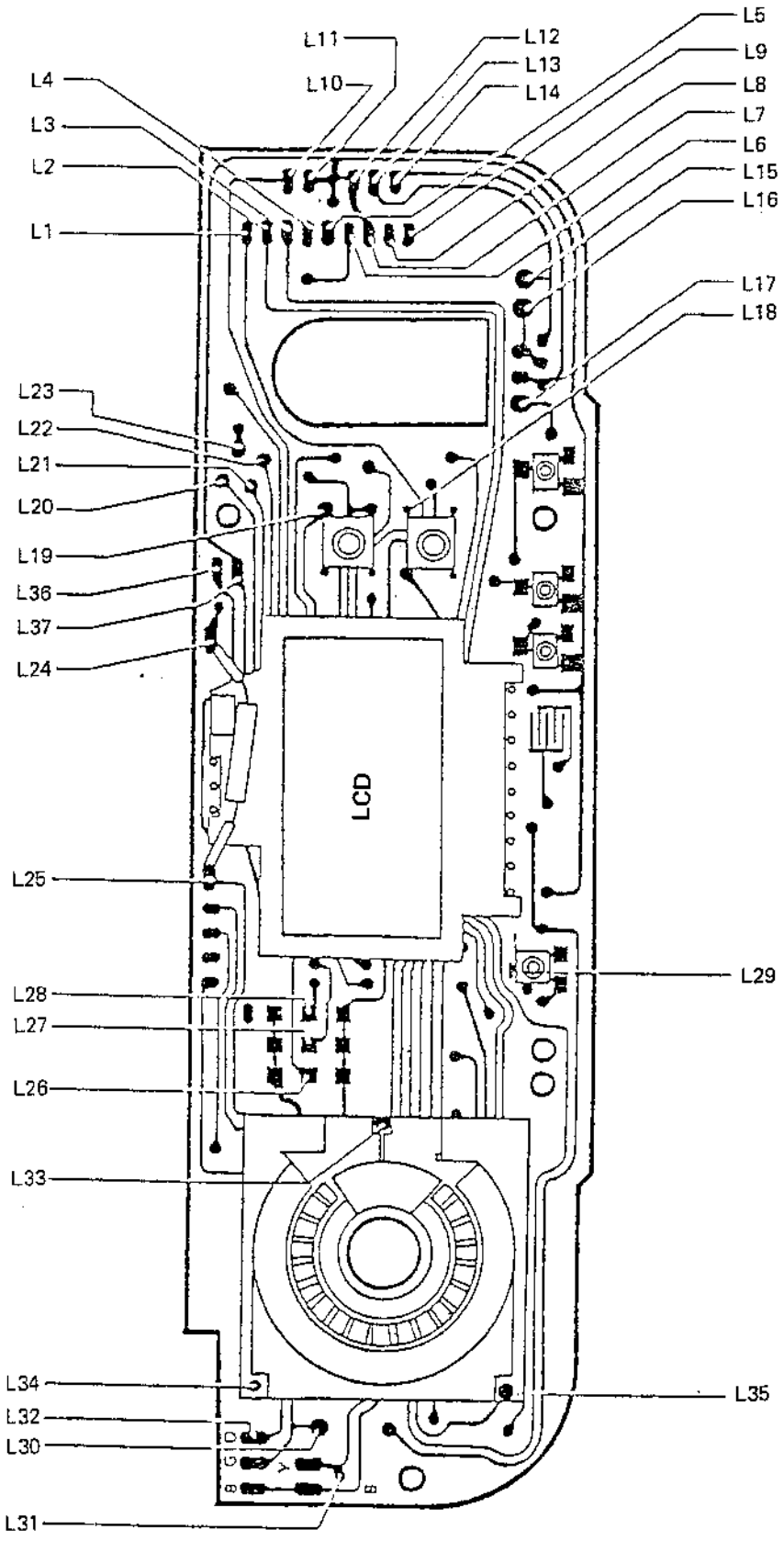
COMPONENT LAYOUT OF THE LCD ASSEMBLY

Fig. 29



CHECK LAND OF THE LCD ASSEMBLY

Fig. 30

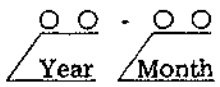


(4) Lithium battery

The film holder uses a super lithium (ER-3) battery, and the capacity is 750 mA.

The service life is five years or longer based on the calculations. However, it is difficult to check the residual capacity. When a film holder is returned for a repair, check the lot number of the lithium battery, and replace it with a new one when three years or more are elapsed after the date of manufacturing.

The lot number is indicated in the following form, and in a middle of the lithium battery, the lot number is stamped.



Before replacing the lithium battery with new one, disconnect the connector between the power supply assembly and LCD assembly. After installing a new battery, reconnect the connector, short-circuit the resetting pattern (reset land) within the LCD assembly, and thus, reset the LCD.

(5) Liquid Crystal Display (LCD)

It may differ depending on the environment in which the LCD is used, but it is generally said that the service life is about five years. When it reaches the service life, the display dims and it cannot be seen clearly unless the LCD is tilted.

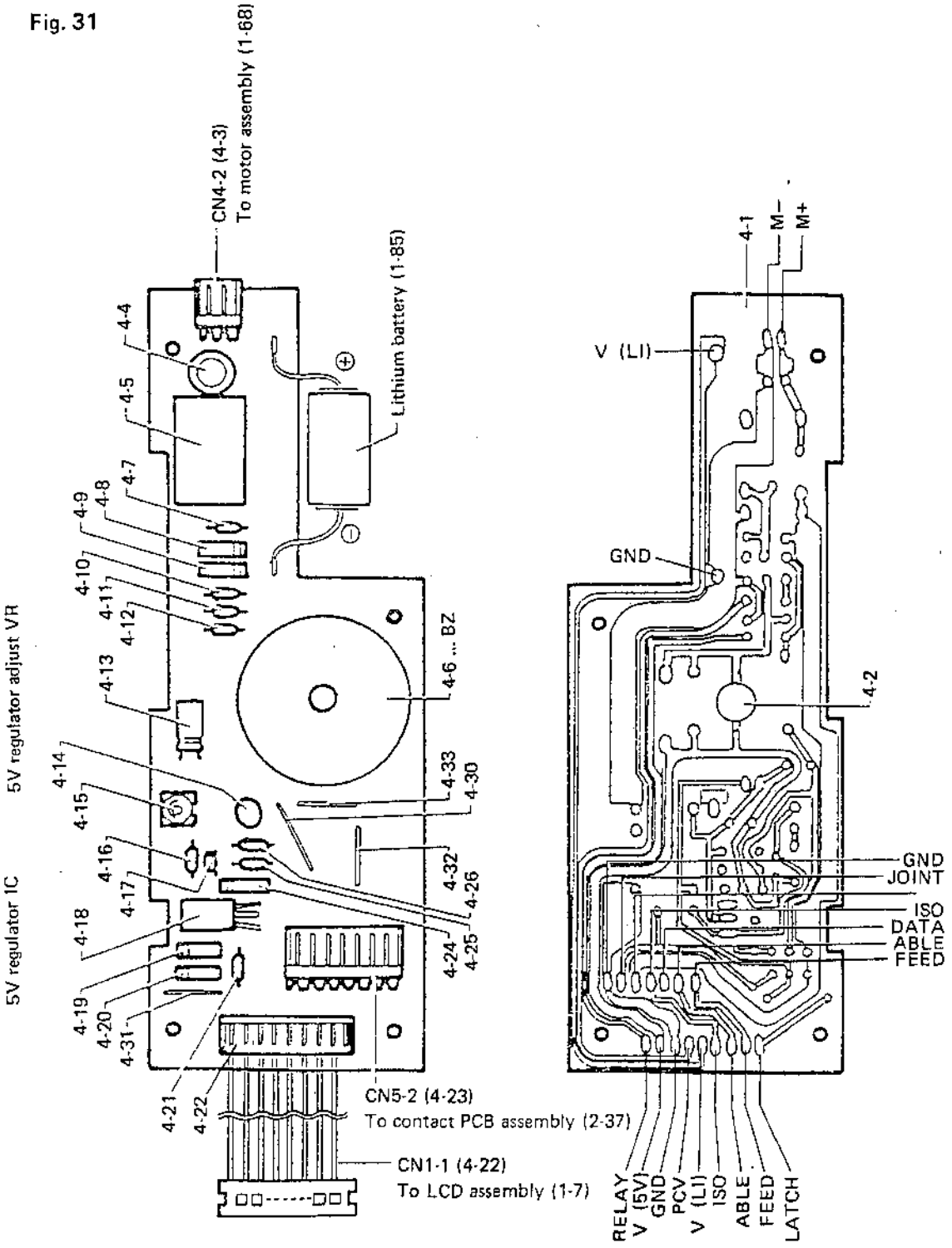
Replace the LCD when it is used for five years.

(6) Resetting the CPU (FG680)

The LCD assembly has a resetting pattern (reset land). This resetting pattern is primarily to initialize the LCD. Normally, do not touch this pattern except when replacing the lithium battery or repairing the LCD assembly. When resetting is made, the memory of total number of shots will be erased.

COMPONENT LAYOUT OF THE POWER SUPPLY ASSEMBLY (1-80)

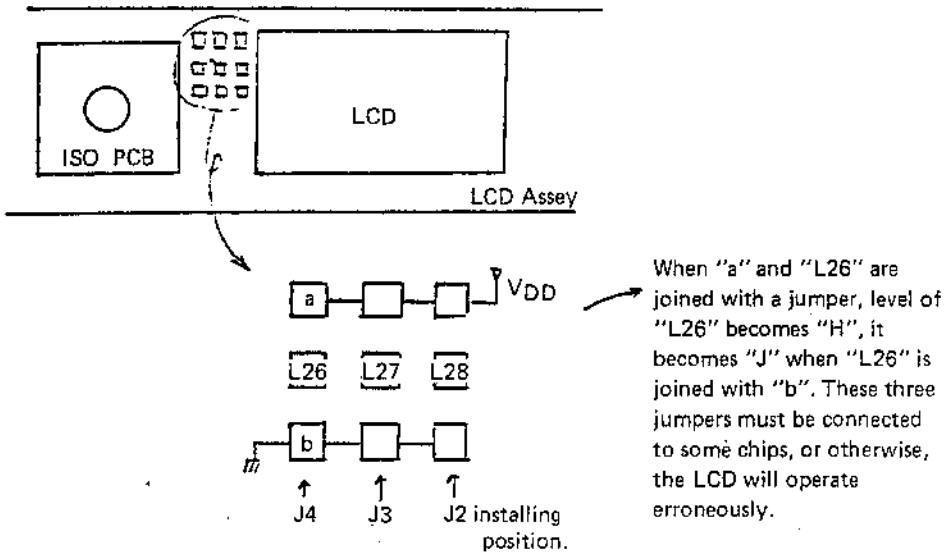
Fig. 31



(7) Holder type setting method

A type of the film holder is set by changing combinations of the chip jumpers within the LCD assembly.

Fig. 32


ISO PCB
LCD
LCD Assey
a
VDD
L26
L27
L28
b
J4
J3
J2 installing position.
When "a" and "L26" are joined with a jumper, level of "L26" becomes "H", it becomes "J" when "L26" is joined with "b". These three jumpers must be connected to some chips, or otherwise, the LCD will operate erroneously.

Types of film holder and jumper combinations are shown below.

Film	Size	Jumper position	Voltage L26-L27-L28
120	6x8		'L' - 'L' - 'L'
	6x7		'L' - 'L' - 'H'
	6x6		'L' - 'H' - 'L'
	645		'L' - 'H' - 'H'
220	6x8		'H' - 'L' - 'L'
	6x7		'H' - 'L' - 'H'
	6x6		'H' - 'H' - 'L'
	645		'H' - 'H' - 'H'

11. Method to adjust sensitivity of the photocoupler of the film holder

(1) Used tools

a) Photocoupler checker (consists of a probe unit and indicator unit)

b) Reference inner frame

(2) Adjusting procedure (At 24±3°C temperature)

a) Preparation

1) Connect the probe unit of the photocoupler checker to the indicator unit and depress the POWER switch (1) to supply power.

2) Remove the top cover assembly (2-3) from the film holder, and install the film holder on the probe unit.

3) Place the reference inner frame in the film chamber of the film holder.

Photocoupler C (1-10) adjustment (PTK)

Photocoupler A (1-100) adjustment (PTA)

Photocoupler B (1-75) adjustment (PTB)

b) Adjustment of photocoupler C (Adjustment of film counter pulse duty)

1) Set the photocoupler checker indicator unit switch (9) to C.

2) Pull the dark slide of the film holder to place the film holder under photographing state. Then, the motor within the film holder operates and the disc connected to the counter gear assembly (1-81) will turn.

3) Properly adjust the variable resistor (3-10) on the LCD assembly (1-7) so that the duty of the counter signal (which is generated as the infrared ray applied to the PTK assembly (1-10) turns on and off) is 1 : 1.

When duty is 1:1 : The ready monitor LED lights.
(Pulse C scale display is also stabilized.)

When duty is incorrect: The ready monitor LED blinks or goes out.
(The pulse C scale display is unstable.)

4) After completing the above adjustment, turn off the switch (9) to stop the motor.

c) Adjustment of photocoupler A

1) Set the switch ⑨ on the photocoupler checker to A & B.

2) Turn the photocoupler adjusting disc (A) of the inner frame to set the reflector opposing the PTA to the standard position (S).

3) Turn the variable resistor (3-9) on the LCD assembly so that the FILA level display LED ⑦ lights.

In this adjustment, be sure to catch the moment at which the LED ⑧ goes out and LED ⑨ lights.

4) Turn the level adjusting disc (A) of the inner frame to set the position of the reflector opposing the PTA assembly to position (H).

Check FILA output level at this time. The level should be "H" (LED ⑦ lights.).

5) Turn the level adjusting disc (A) of the inner frame so set the reflector opposing the PTA assembly to position (L).

Check FILA output level at this time. The level should be "L" (LED ⑧ lights.).

NOTE:

When the result of adjustments 4) and 5) is negative, repeat adjustments from step 3).

d) Adjustment of photocoupler B

1) Set the photocoupler checker switch ⑨ to A & B.

2) Turn the photocoupler adjusting disc (B) of the inner frame to set the reflector opposing the PTB to the standard position (S).

3) Turn the variable resistor (3-8) on the LCD assembly properly so that the FILB level display LED ⑥ lights.

In this adjustment, be sure to catch the moment at which the LED ⑤ goes out and LED ⑥ lights.

4) Turn the photocoupler adjusting disc (B) of the inner frame to set the position of the reflector opposing the PTB assembly to position (H).

Check FILB output level at this time. The level should be "H" (LED ⑥ lights.).

5) Turn the level adjusting disc (B) of the inner frame to set the reflector opposing the PTB assembly to position (L).

Check FILB output level at this time. The level should be "L" (LED ⑤ lights.).

NOTE:

When the result of adjustments 4) and 5) is negative, repeat adjustments from step 3).

(3) Components of the photocoupler checker

① Power switch: Turn on and off AC power supply

② Digital voltmeter measuring point selector switch

A: FILA signal level measuring position

B: FILB signal level measuring position

a: FILA signal reference voltage measuring position

b: FILB signal reference voltage measuring position

c: COUNT signal reference voltage measuring position

③ Exposure counter roller duty ratio display LED

ON: OK BLINK or OFF: NG

④ Exposure counter roller duty ratio level display LED

⑤ FILB signal "L" level display LED

⑥ FILB signal "H" level display LED

⑦ FILA signal "H" level display LED

⑧ FILA signal "L" level display LED

⑨ Power select switch used when adjusting COUNT signal level (PC4) ~ FILA.FILB signal level

⑩ FEED signal output switch: One pulse is generated as this switch is turned on.

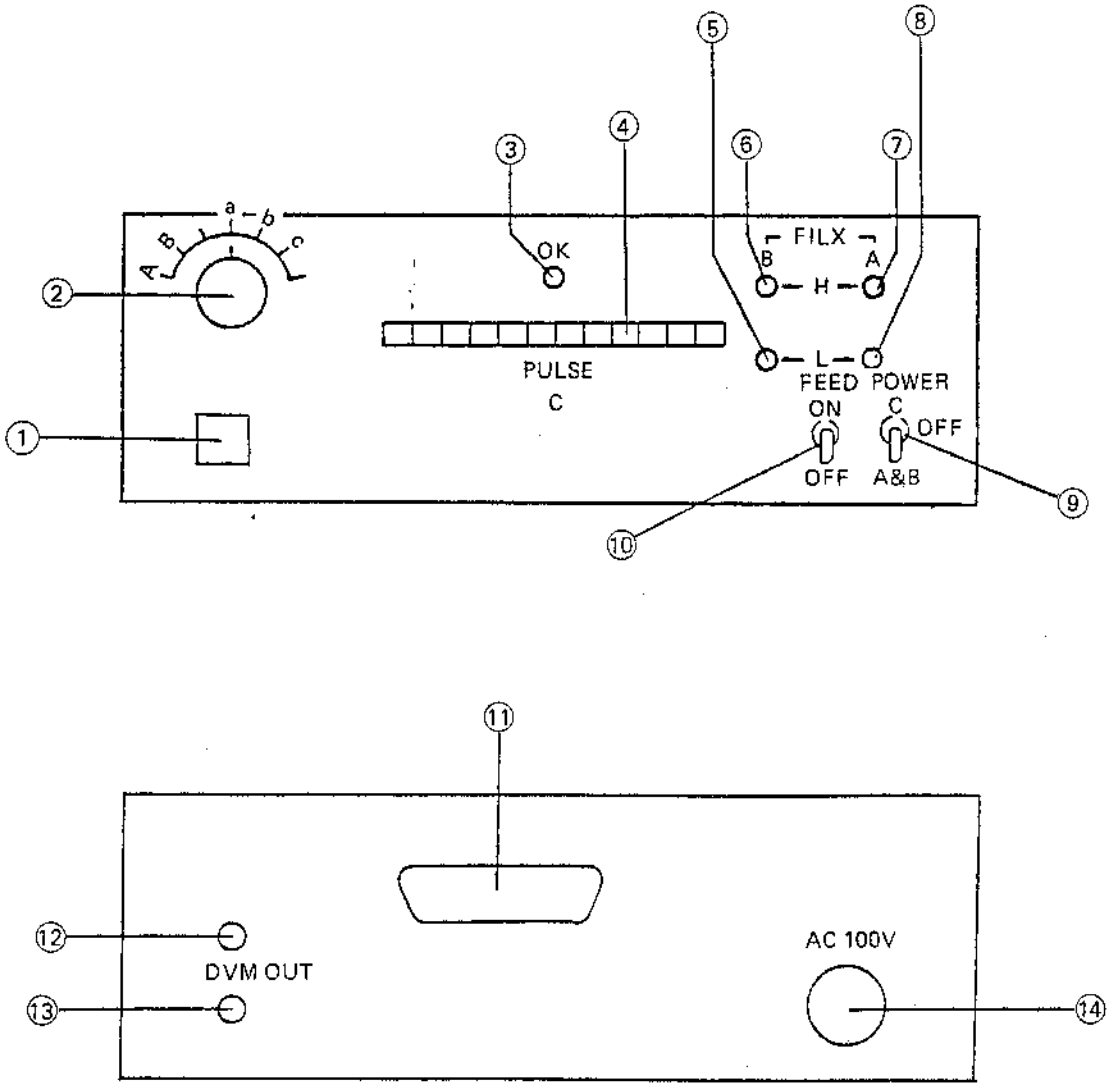
⑪ I/O terminal with the film holder

⑫, ⑬ Digital voltmeter connecting terminal

⑭ AC power supply input

COMPONENTS OF PHOTOCOUPLER CHECKER

Fig. 33



(4) Standard inner frame

The standard inner frame is used to adjust sensitivities of photocouplers (film sensors) A and B. For the infrared reflecting surface, the standard reflector of 36% reflection ratio is used.

NOTE:

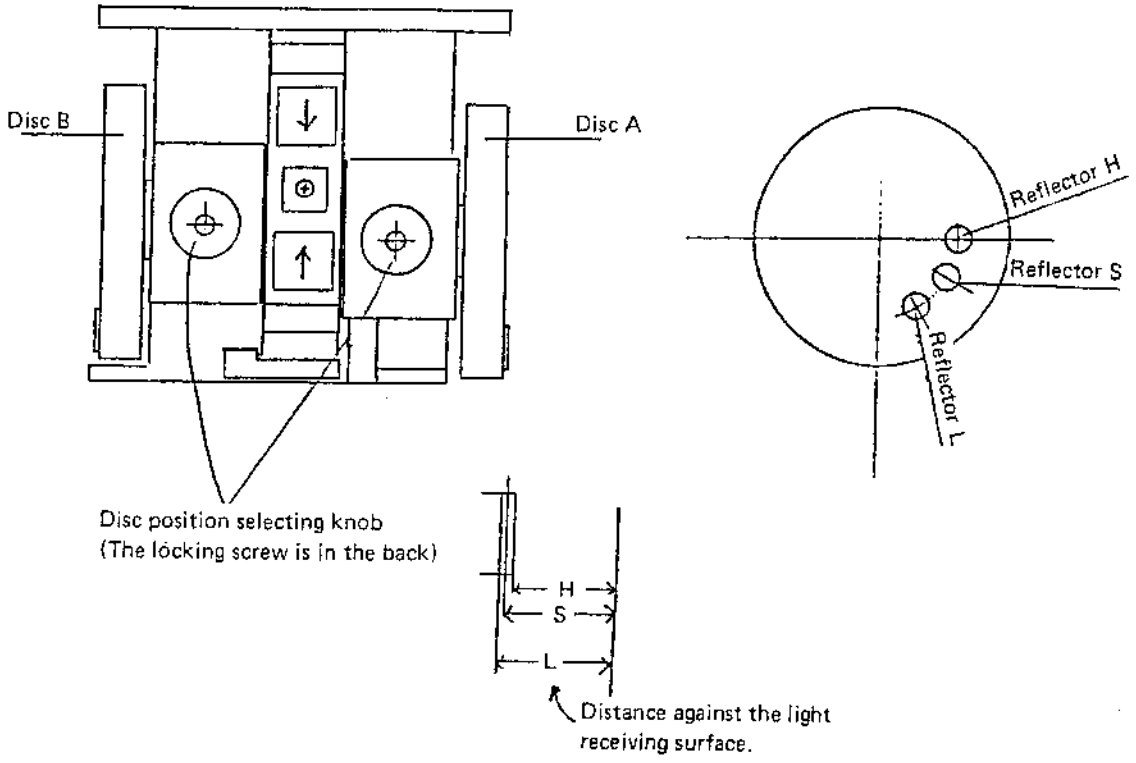
Handle the reflector carefully to prevent unreasonable deterioration.

The serviceable period is 6 months.

The reflecting suface position is set based on the reflection ratio of a film, reflection ratio of shield paper (film leader) and reflection ratio of the film feeding/take-up shafts. Sensitivity adjust position and check position can be set by turning discs A and B.

STANDARD INNER FRAME

Fig. 34



12. 5V regulator checking method

(1) Remove the cover from the film holder, and install the film holder on the photocoupler checker. (Do not lower the probe unit.)

(2) Turn the power supply of the photocoupler checker, and set the power select switch ⑨ to "C".

(3) Make sure that the LCD is lighting.

When the LCD does not light, check:

a. If the contact PCB assembly (2-37) has a broken wire or the connector is not connected firmly.

b. If the contact PCB assembly (2-37) has a poor contact or faulty contact.

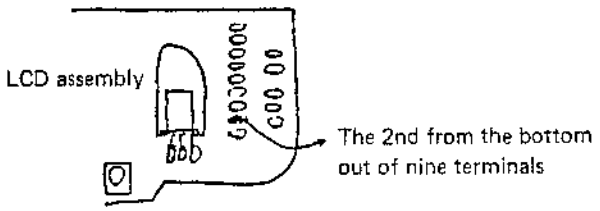
c. If the connector which joint the power supply assembly to the LCD assembly has a broken wire or poor connection.

(4) Ground the film holder at the film base (One out of four cover installing portions is not pained. Ground this portion.) or at (−) terminal of the lithium battery.

(5) Read voltage at 5V terminal of the LCD assembly on the digital voltmeter.

a. When deviated from 5V±20mV, properly turn the variable resistor (4-15) of the power supply assembly.

b. When it is about zero volt, the regulator (IC is (4-18)) of the power supply assembly is defective. Replace it with a new one.



13. Clock frequency checking method

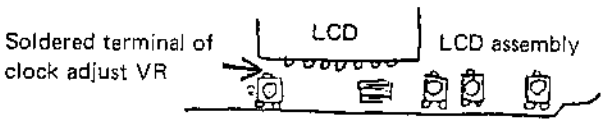
(1) Install the film holder on the photocoupler checker after taking the cover from the film holder. (Do not lower the probe unit.)

(2) Set the power switch of the checker to ON, and set the power select switch ⑨ to "C".

(3) Set the SB switch (switch S2 (1-73)) to "ON".

(4) Observe frequency at the soldered terminal of the clock adjust VR with a frequency counter or oscilloscope. In this case, be sure to apply buffer of J-FET input.

Readjust when it is deviated from 70 KHz ±1%.



Ⅳ. TROUBLESHOOTING

1. When the CALL button (S1) is pressed with the film holder not mounted on the camera, the LCD does not light.

Visual

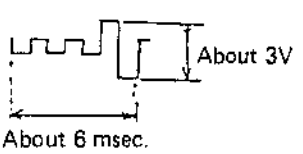
- The soldered lithium battery (1-85) terminal is disconnected
  - → Reconnect.
- The terminal base of the lithium battery (1-85) is broken or there is a play in between the lithium battery and PCB (4-1).
  - → Replace the power supply assembly with a new one.
- The line from the power supply assembly to the LCD assembly is broken.
  - → Replace the connector (4-22) with a new one.
- The inserted connector (4-22) is floated.
  - → Reconnect firmly.

Digital voltmeter

- Voltage of the lithium battery (1-85) is below 3V.
  - → Replace the lithium battery (1-85) with a new one.
- Voltage at terminal Li (L5) of the LCD assembly is below 3V.
  - → Replace the connector (4-22) or power supply assembly with a new one.
- When CALL switch (S1) is pressed, voltage of the terminal above the switch is 0.5V or higher.
  - → The switch is defective. Replace the LCD assembly with a new one.

Oscilloscope

- Push the CALL switch (S1), and observe waveform of one out of three terminals above the LCD.
  - → When the waveform is not as shown below, replace the LCD assembly with a new one.



→ Replace the LCD assembly with a new one.

2. When the main switch (SW1) on the camera is turned on, the LCD does not light.

Visual

→ The LCD does not light when the CALL switch (S1) is pressed with the main switch on the camera turned off.
  → Refer to IV-1 above.

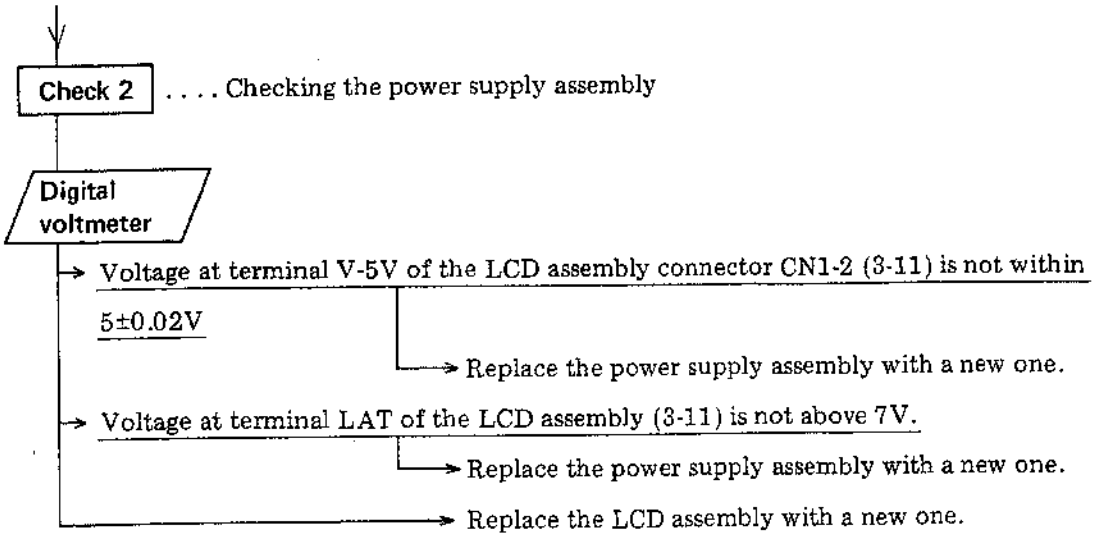
→ The connector (CN5-1) or (CN1-1 (4-22)) has a broken wire or is not connected firmly.
  → Replace connector with a new one or reconnect the connector firmly.

Check 1 .... Contacts (CN6 and CN7) (Check these contacts to insure that signal is delivered to these contacts or not.)

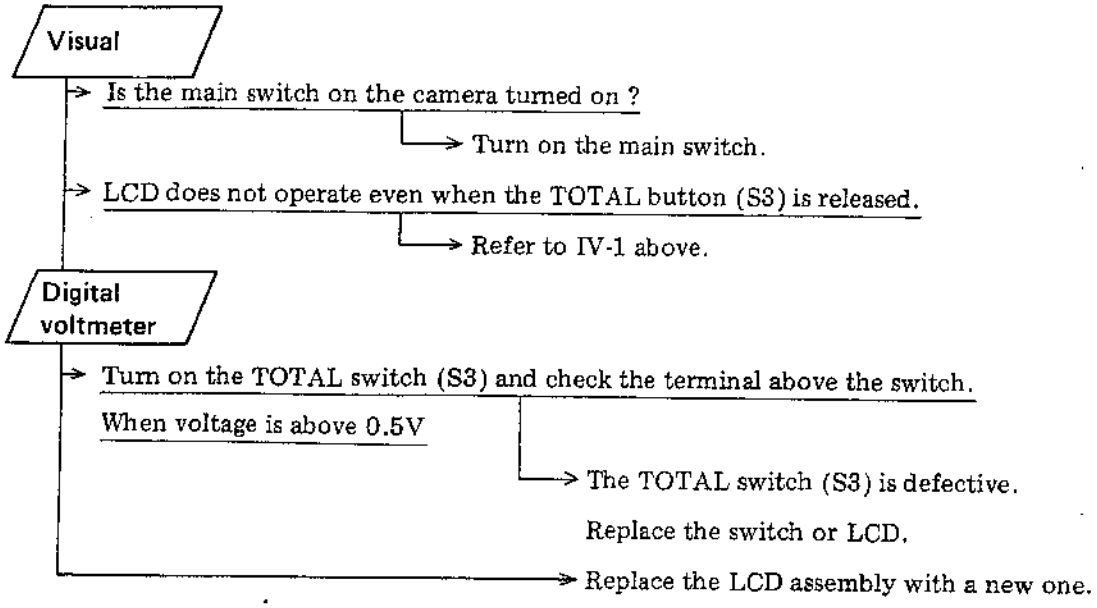
Digital voltmeter

→ Mount the film holder on the camera, and measure terminal Vcc-2 at the portion where the connector (CN5-1) of the connector assembly is soldered.
  → If it is below 7.5V
  → If voltage at terminal JOINT is above 0.5V
    → Replace the connector assembly with a new one.
    The connector assembly has a broken wire or the contact is damaged.
    It is also necessary to check the camera side.

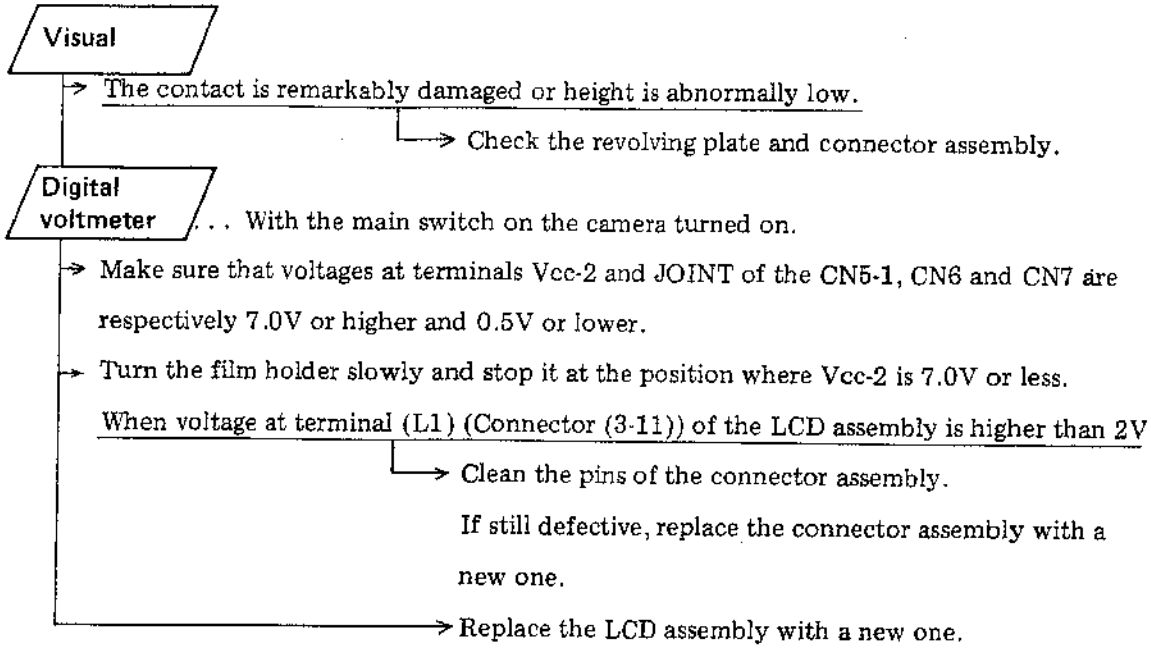
→ Measure voltage at the following terminals at the portion where the connector (CN5-1) is connected.
  → When Vcc-2 is below 7.5V:
  → When voltage at terminal JOINT is above 0.5V:
    → The connector (CN5-1) has a broken wire
    Replace the connector (CN5-1) with a new one.


Check 2
. . . . Checking the power supply assembly
Digital voltmeter
Voltage at terminal V-5V of the LCD assembly connector CN1-2 (3-11) is not within 5±0.02V
Replace the power supply assembly with a new one.
Voltage at terminal LAT of the LCD assembly (3-11) is not above 7V.
Replace the power supply assembly with a new one.
Replace the LCD assembly with a new one.

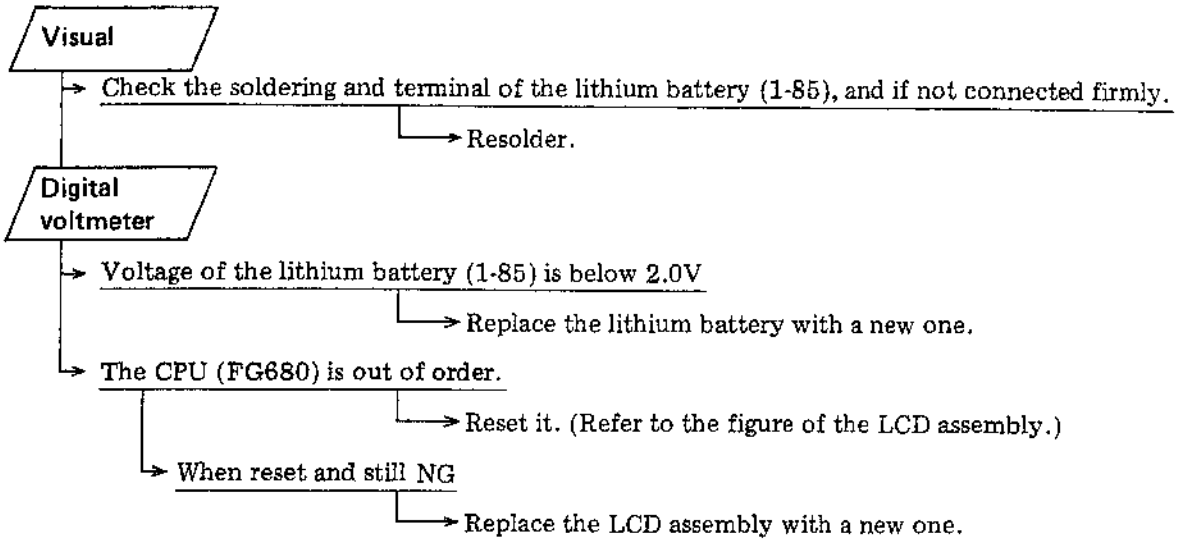
3. **When TOTAL button (S3) is pressed, ◯x100 is not displayed.**
(◯x100 is not displayed during winding.)


Visual
Is the main switch on the camera turned on ?
Turn on the main switch.
LCD does not operate even when the TOTAL button (S3) is released.
Refer to IV-1 above.
Digital voltmeter
Turn on the TOTAL switch (S3) and check the terminal above the switch.
When voltage is above 0.5V
The TOTAL switch (S3) is defective.
Replace the switch or LCD.
Replace the LCD assembly with a new one.

4. **When the film holder is dismounted from the camera or revolved, ◯x100 is displayed.**
This trouble occurs when pin Vcc-2 and JOINT (contact pins CN6 and CN7 with the camera) disengaging timing is deviated.


Visual
The contact is remarkably damaged or height is abnormally low.
Check the revolving plate and connector assembly.
Digital voltmeter
. . . With the main switch on the camera turned on.
Make sure that voltages at terminals Vcc-2 and JOINT of the CN5-1, CN6 and CN7 are respectively 7.0V or higher and 0.5V or lower.
Turn the film holder slowly and stop it at the position where Vcc-2 is 7.0V or less.
When voltage at terminal (L1) (Connector (3-11)) of the LCD assembly is higher than 2V
Clean the pins of the connector assembly.
If still defective, replace the connector assembly with a new one.
Replace the LCD assembly with a new one.

5. **When the CALL button (S1) is pressed or main switch on the camera is turned on, the LCD does not display correctly.**


Visual
Check the soldering and terminal of the lithium battery (1-85), and if not connected firmly.
Resolder.
Digital voltmeter
Voltage of the lithium battery (1-85) is below 2.0V
Replace the lithium battery with a new one.
The CPU (FG680) is out of order.
Reset it. (Refer to the figure of the LCD assembly.)
When reset and still NG
Replace the LCD assembly with a new one.

6. When a film is loaded and film chamber door is closed, the film is not set to the 1st frame. (Even one second after, it is still in 0 EXP.)

Visual

→ Is the READY monitor lighting on the camera ?
  → Pull the dark slide.

→ Run the film chamber door key (with the film chamber door closed)
  → If not turns off, replace the switch.

Does the SB switch (S2) turn off correctly ?

→ Does the switch (S4) turn off correctly ?
  → Check the levers.

Digital voltmeter

→ Voltage at terminal (L10) (3-12) of the LCD assembly is below 4.0V.
It is still below 4.0V even after disconnecting the switch (1-99)
  → Replace the LCD assembly with a new one.
  → Replace the switch assembly (1-99) with a new one.

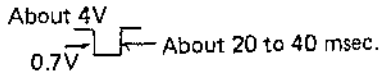
→ Voltage at SB terminal (L31) of the LCD assembly is below 4.0V.
  → Replace LCD Assembly.

→ Even if the lead wire of the SB switch is disconnected, voltage is still below 4.0V
  → Replace the LCD assembly with a new one.

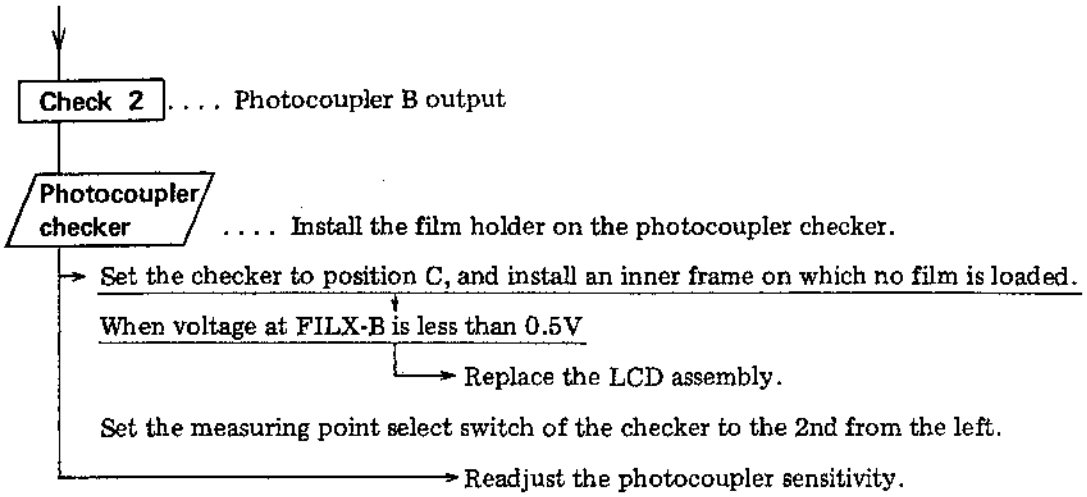
Check 1 . . . . Photocoupler power supply

Oscilloscope

→ Turn off the switch (1-73) from ON and see if voltage at terminal PTC (L23) of the LCD assembly changes as shown below.
  → No pulse is output



  → Replace the LCD assembly with a new one.


Check 2
.... Photocoupler B output
Photocoupler checker
.... Install the film holder on the photocoupler checker.
Set the checker to position C, and install an inner frame on which no film is loaded.
When voltage at FILX-B is less than 0.5V
Replace the LCD assembly.
Set the measuring point select switch of the checker to the 2nd from the left.
Readjust the photocoupler sensitivity.

7. When a film is loaded and film chamber door is closed, the film is not set to the 1st frame. (Abnormal display is made.)

Visual

→ When the film chamber door is opened once and then closed

- → The motor does not operate
  - → To Check 1
- → The motor operates
  - → To Check 2

Check 1 . . . . Checks when the motor does not operate.

Digital voltmeter

→ Disconnect the motor connector from the power supply assembly, and measure voltage at the motor terminal of the power supply assembly connector (male) (4-3)
Measure this voltage during about one second from OPEN to CLOSE of the film chamber door.

- → When it is below 7.0V
  Voltage at LCD assembly connector relay terminal (L9) at the same timing
  - → 2.0V or higher
    - → Replace the power supply assembly
  - → Lower than 2.0V
    - → Replace the LCD assembly
- → When it is 7.0V or higher
  - → Check the mechanism system including the motor.

Check 2 .... When the motor operates.

Visual

Is the counter drum turning when the motor is operating ?

- YES → Readjust the photocoupler C.
- NO → Check the roller of the inner frame and counter drum.

NOTE

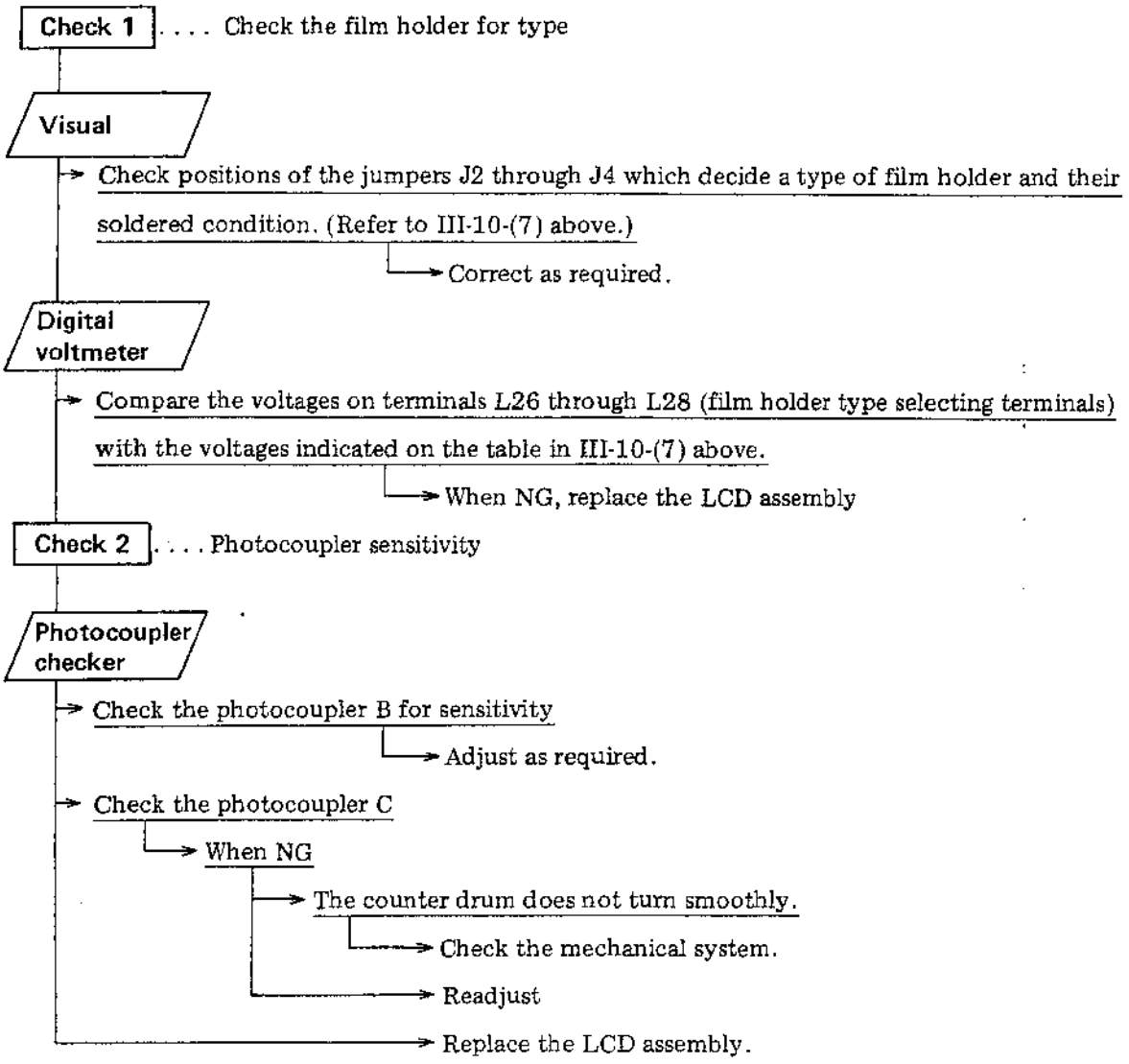
The film is not set to the 1st frame when:

Reflection ratio of the photocoupler B is high

Reflection ratio of the photocoupler A is low

→ For example, when the inner frame is loaded only or the tape of the film is cut by a knife or the film comes to photocoupler B side during loading, the film is not set to the 1st frame.

8. When the film is set to the 1st frame, its position is incorrect.


Check 1 .... Check the film holder for type
Visual
Check positions of the jumpers J2 through J4 which decide a type of film holder and their soldered condition. (Refer to III-10-(7) above.)
Correct as required.
Digital voltmeter
Compare the voltages on terminals L26 through L28 (film holder type selecting terminals) with the voltages indicated on the table in III-10-(7) above.
When NG, replace the LCD assembly
Check 2 .... Photocoupler sensitivity
Photocoupler checker
Check the photocoupler B for sensitivity
Adjust as required.
Check the photocoupler C
When NG
The counter drum does not turn smoothly.
Check the mechanical system.
Readjust
Replace the LCD assembly.

9. The film is not advanced after taking picture

◯EXP is displayed continuously even after one second.

READY monitor on the camera is abnormal.

Visual

→ Check relative positions between the camera and film holder pins

→ A gap exists between pins

→ Check size around the contact.

→ Does the LCD light when the main switch (SW1) on the camera is turned on ?

→ When the LCD does not light, refer to IV-2 above.

→ When the CALL button (S1) is pressed, does the lamp light and is ◯x100 displayed when TOTAL button (S3) is pressed ?

→ The CPU is out of order. Refer to IV-5 above.

Check 1 .... Contacts and connectors

Digital voltmeter ... Take ground from the ground of the camera (for example, hot shoe).

→ Check each terminal of the LCD assembly (Connector CN1-2 (3-11)).

→ When terminal L-5V (L8) is not about 5V
→ When terminal GND (L7) is not about 0V
→ When terminal LATCH (L1) is not above 7V
→ The connector assembly or power supply assembly is defective.

Oscilloscope

→ Is voltage at terminal FEED (3-11) of the LCD assembly above 4V when the main switch (SW1) on the camera is turned on, and FEED button (SW6) is turned at multiple mode (SW3) ?

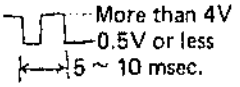
→ When 4V or less

→ Voltage at terminal FEED (Connector assembly CN5) is 4V or less

→ Poor contact with the pins on the camera or damaged contact or connector PCB assembly.

→ Replace the power supply assembly.

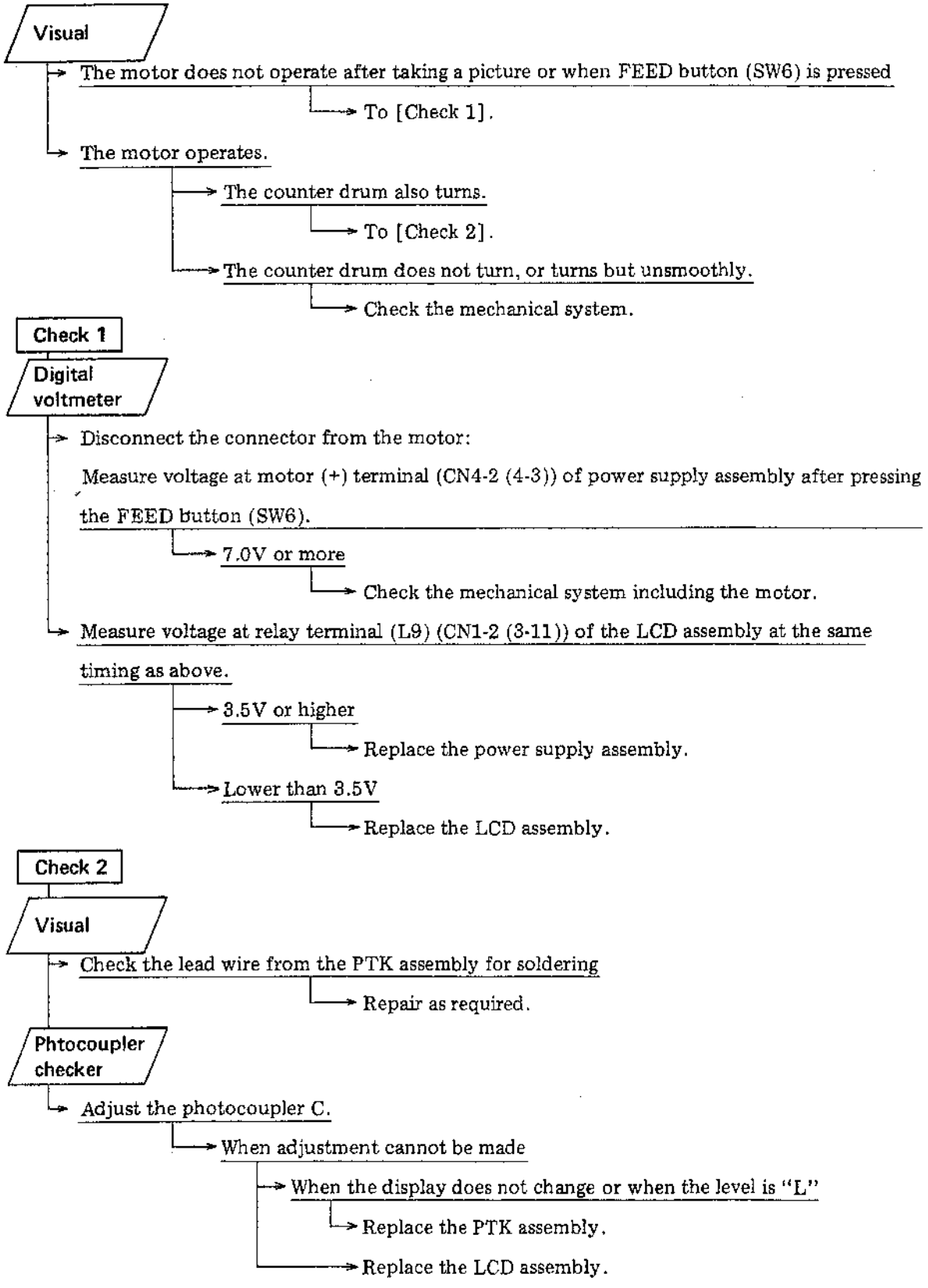
→ Is voltage at terminal ABLE (3-11) of the LCD assembly



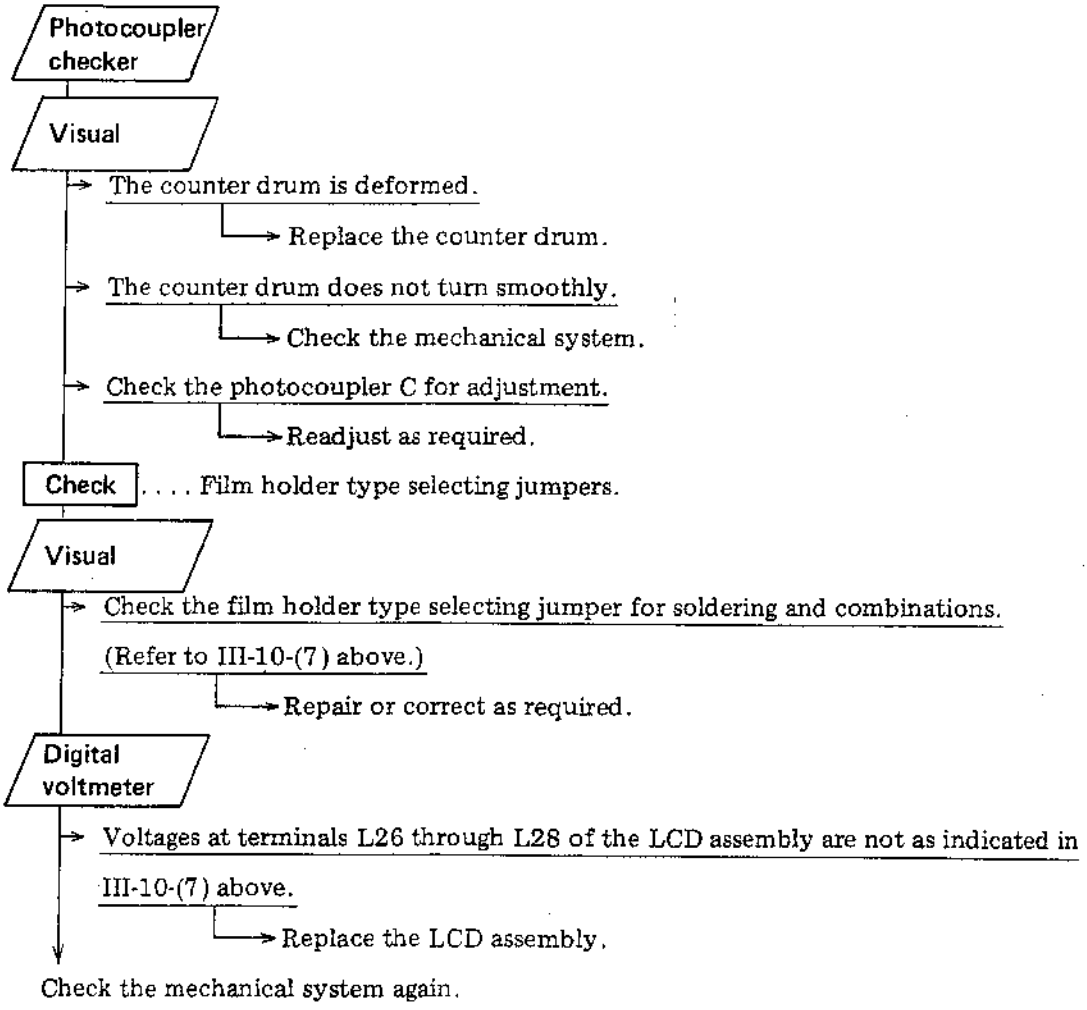
when the main switch (SW1) on the camera is turned on and FEED button (SW6) is pressed at multiple mode (SW3) ?

- When it is output, check terminal ABLE of connector CN-5.
  - If not output
    - Replace the power supply assembly
- When it is not output
  - Replace the LCD assembly.

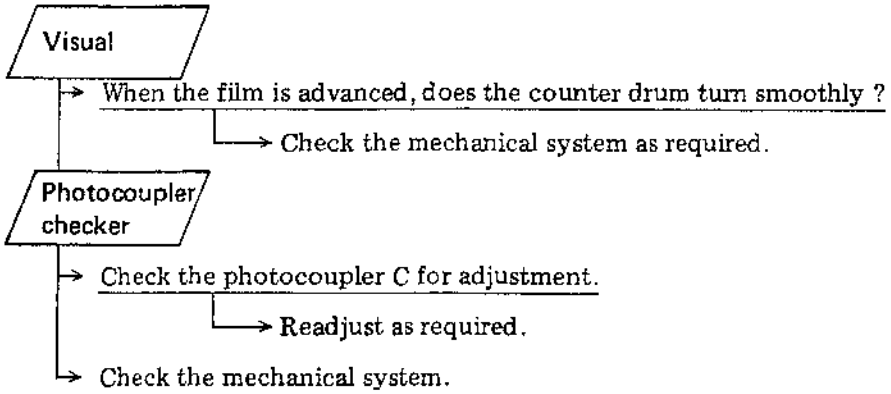
10. The film is not advanced after taking a picture . . . LCD becomes abnormal one second after.


Visual
The motor does not operate after taking a picture or when FEED button (SW6) is pressed
To [Check 1].
The motor operates.
The counter drum also turns.
To [Check 2].
The counter drum does not turn, or turns but unsmoothly.
Check the mechanical system.
Check 1
Digital voltmeter
Disconnect the connector from the motor:
Measure voltage at motor (+) terminal (CN4-2 (4-3)) of power supply assembly after pressing the FEED button (SW6).
7.0V or more
Check the mechanical system including the motor.
Measure voltage at relay terminal (L9) (CN1-2 (3-11)) of the LCD assembly at the same timing as above.
3.5V or higher
Replace the power supply assembly.
Lower than 3.5V
Replace the LCD assembly.
Check 2
Visual
Check the lead wire from the PTK assembly for soldering
Repair as required.
Phtocoupler checker
Adjust the photocoupler C.
When adjustment cannot be made
When the display does not change or when the level is "L"
Replace the PTK assembly.
Replace the LCD assembly.

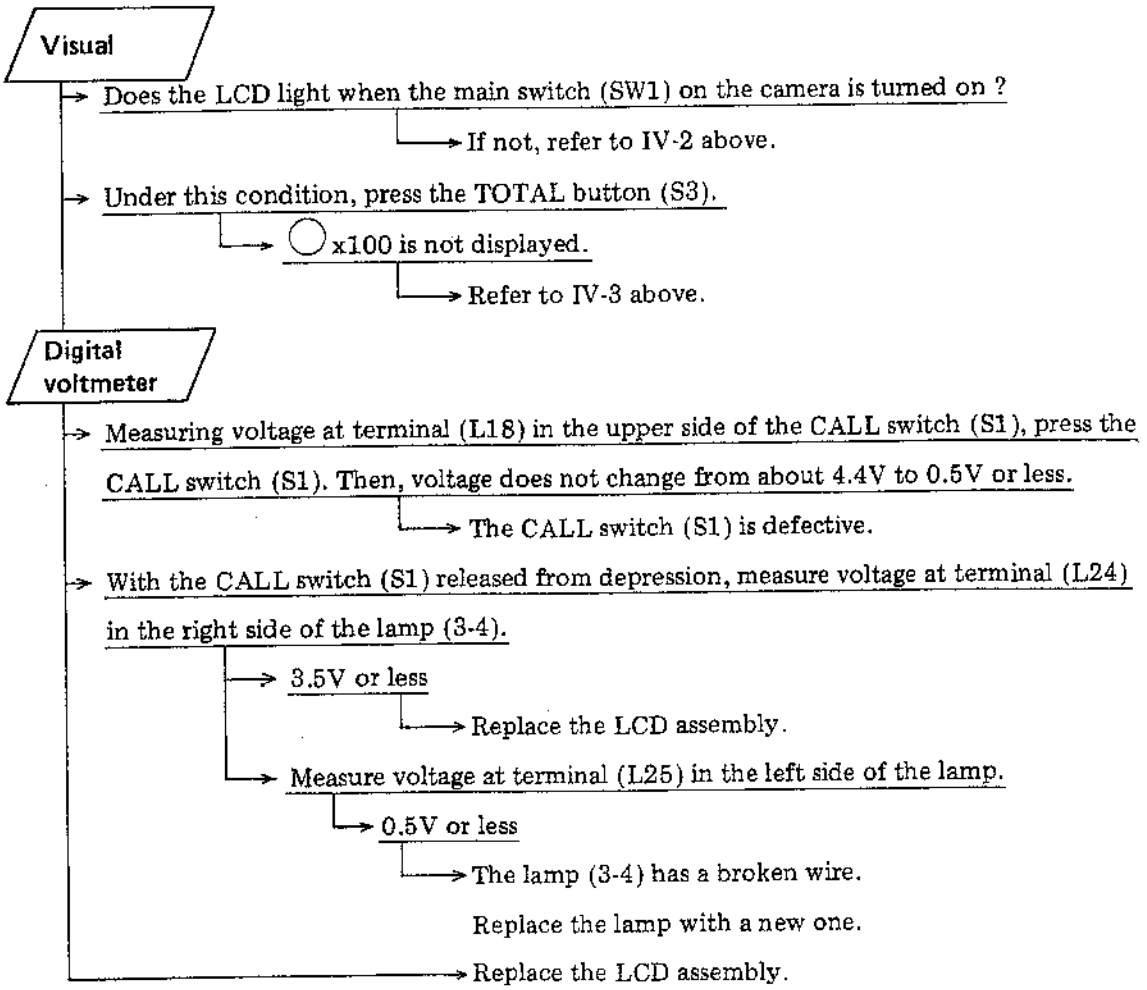
11. Frame-to-frame space is abnormal . . . It constantly occurs whenever the film is advanced.


Photocoupler checker
Visual
The counter drum is deformed.
Replace the counter drum.
The counter drum does not turn smoothly.
Check the mechanical system.
Check the photocoupler C for adjustment.
Readjust as required.
Check . . . . Film holder type selecting jumpers.
Visual
Check the film holder type selecting jumper for soldering and combinations.
(Refer to III-10-(7) above.)
Repair or correct as required.
Digital voltmeter
Voltages at terminals L26 through L28 of the LCD assembly are not as indicated in III-10-(7) above.
Replace the LCD assembly.
Check the mechanical system again.

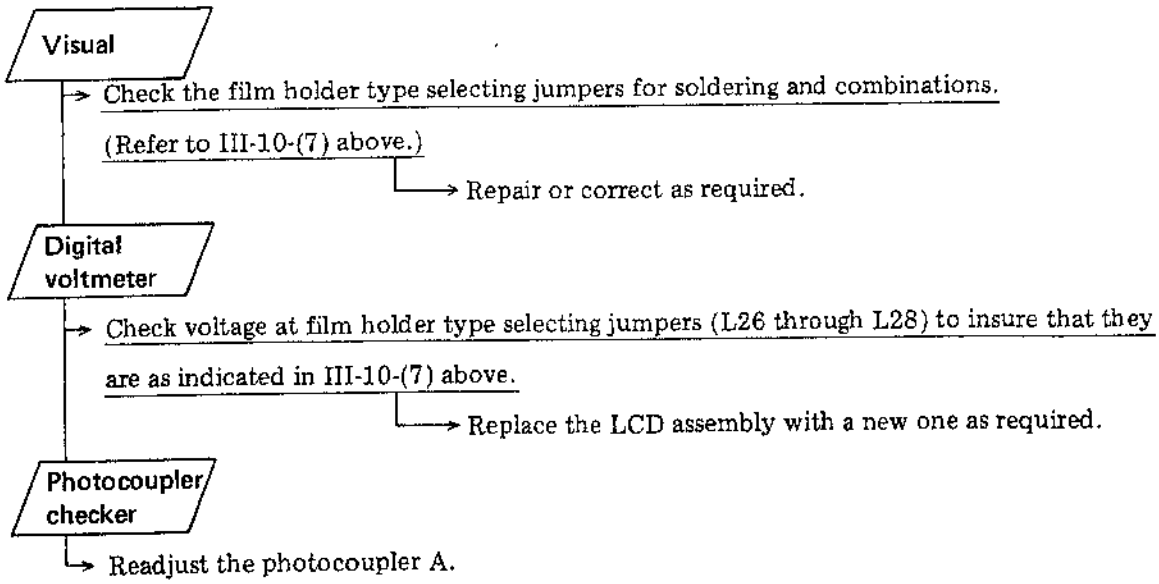
12. Frame-to-frame space is abnormal . . . It occurs occasionally.


Visual
When the film is advanced, does the counter drum turn smoothly ?
Check the mechanical system as required.
Photocoupler checker
Check the photocoupler C for adjustment.
Readjust as required.
Check the mechanical system.

13. When CALL button is pressed, the lamp (3-4) does not light, or does not go out.


Visual
Does the LCD light when the main switch (SW1) on the camera is turned on ?
If not, refer to IV-2 above.
Under this condition, press the TOTAL button (S3).
x100 is not displayed.
Refer to IV-3 above.
Digital voltmeter
Measuring voltage at terminal (L18) in the upper side of the CALL switch (S1), press the CALL switch (S1). Then, voltage does not change from about 4.4V to 0.5V or less.
The CALL switch (S1) is defective.
With the CALL switch (S1) released from depression, measure voltage at terminal (L24) in the right side of the lamp (3-4).
3.5V or less
Replace the LCD assembly.
Measure voltage at terminal (L25) in the left side of the lamp.
0.5V or less
The lamp (3-4) has a broken wire.
Replace the lamp with a new one.
Replace the LCD assembly.

14. The film is advanced to the film end without being exposed. (Each frame is skipped)


Visual
Check the film holder type selecting jumpers for soldering and combinations. (Refer to III-10-(7) above.)
Repair or correct as required.
Digital voltmeter
Check voltage at film holder type selecting jumpers (L26 through L28) to insure that they are as indicated in III-10-(7) above.
Replace the LCD assembly with a new one as required.
Photocoupler checker
Readjust the photocoupler A.

15. The film is not taken up when the FEED button (SW6) is pressed under multiple mode (SW3).

The exposure monitor displays (+) or (—) only.

The exposure monitor does not display under the multiple mode.

Digital voltmeter . . . Set the main switch (SW1) on the camera to ON and check.

Set the film speed (ISO) selector dial to ISO 100.

→ Measure voltage at terminal ISO of the connector (CN-5) of the connector assembly.

→ 1.16V±20mV is output.

→ Poor contact with the pins of the camera.

→ Measure voltage at ISO terminal (L4) of the connector (3-11) of the LCD assembly.

→ 1.16V±20mV is output.

→ The connector (CN1-1) has a broken wire or defective soldering.

Visual

→ Check the contact of the film speed (ISO) selector dial for bending or breakdown.

→ Replace the dial with a new one.

→ Replace the LCD assembly with a new one.

16. The buzzer does not sound or volume is too low when an abnormal condition occurs or the film reaches the last frame.

Visual

→ Check the buzzer assembly (4-6) visually.

→ Replace it with a new one if it is broken.

Digital voltmeter

→ Measure resistance at both ends of the coil (4-2).

→ 200 ohms or more

→ Replace the coil (4-2) with a new one.

Oscilloscope

→ Pull out the inner frame, turn off the SB switch (S2), and measure voltage at PCV terminal (L6) of connector (3-11) of the LCD assembly one second after.

→ . . . Be sure to measure within 3 seconds.

→ About 3.5V
0.1V is output.
←3 seconds→

→ Replace the power supply assembly with a new one.

→ It is below 0.5V and does not change.

→ Replace the LCD assembly with a new one.

17. When a short film is applied, END is not displayed . . . The buzzer sounds.

Photocoupler checker

→ Readjust sensitivity of the photocoupler A.

→ When the trouble still occurs after the above readjustment, replace the LCD assembly with a new one.

18. The exposure counter does not reset to 0 EXP when the film chamber door is opened.

Visual
- Check the ribbon cable (SB) of the switch assembly (1-73) for soldering and broken wire.
  - → Repair as required.

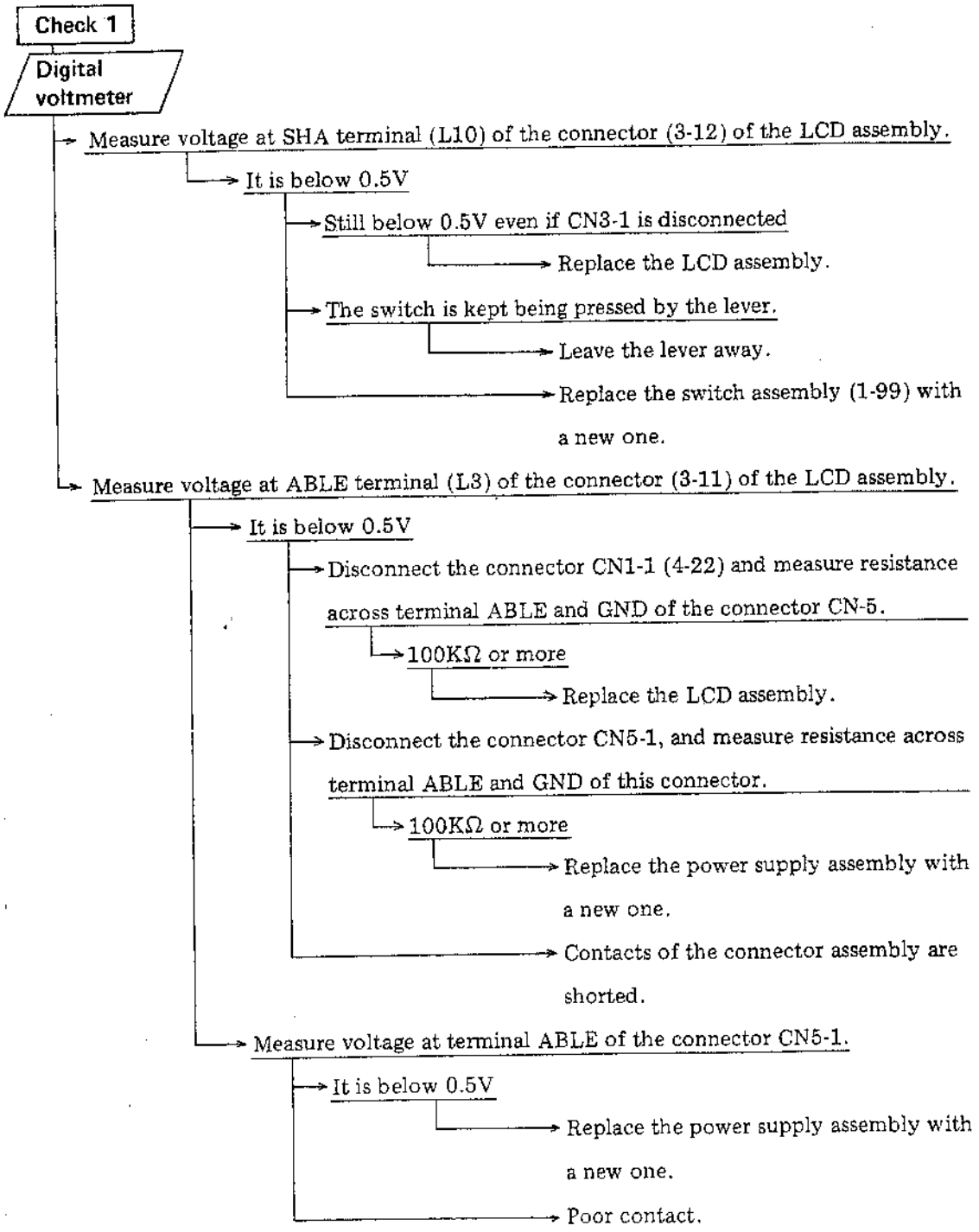
Digital voltmeter
- Measure voltage at SB terminal (L31) fo the LCD assembly.
  - → When it is not below 0.5V with the switch (S2) turned on.
    - → Replace the switch assembly (1-73) with a new one.
- → Replace the LCD assembly with a new one.

19. The buzzer does not sound when an abnormal condition occurs on the camera.

Visual
- The buzzer does not sound one second after opening and closing the film chamber door with the inner frame removed.
  - → Refer to IV-6 above.
- The film is not advanced and READY monitor on the camera blinks (abnormal display) when the FEED button (SW6) is pressed under multiple mode (SW3) with the main switch (SW1) on the camera turned on.
  - → Refer to IV-10 above.

20. The READY monitor on the camera lights or blinks continuously.

Visual . . . . With the main switch (SW1) on the camera turned on.
- The READY monitor on the camera blinks continuously.
  - → Is the LCD lighting ?
    - → Refer to IV-2 above.
  - → Is not the LCD displaying "END" or abnormal mark 8.:.0' ?
    - → Open the film chamber door.
      The display will change to 0 EXP.
  - → Is not the dark slide inserted ?
    - → If inserted, pull out.
  - → To Check 1
- The READY monitor lights continuously.
  - → To Check 2


Check 1
Digital voltmeter
Measure voltage at SHA terminal (L10) of the connector (3-12) of the LCD assembly.
It is below 0.5V
Still below 0.5V even if CN3-1 is disconnected
Replace the LCD assembly.
The switch is kept being pressed by the lever.
Leave the lever away.
Replace the switch assembly (1-99) with a new one.
Measure voltage at ABLE terminal (L3) of the connector (3-11) of the LCD assembly.
It is below 0.5V
Disconnect the connector CN1-1 (4-22) and measure resistance across terminal ABLE and GND of the connector CN-5.
100KΩ or more
Replace the LCD assembly.
Disconnect the connector CN5-1, and measure resistance across terminal ABLE and GND of this connector.
100KΩ or more
Replace the power supply assembly with a new one.
Contacts of the connector assembly are shorted.
Measure voltage at terminal ABLE of the connector CN5-1.
It is below 0.5V
Replace the power supply assembly with a new one.
Poor contact.

Check 2 .... Insert the dark slide and check.

Digital voltmeter

→ Measure voltage at terminal ABLE of the connector CN5-1 of the connector assembly.

→ 3V or more is output

→ Disconnect the CN1-1 and measure voltage at the same terminal.

→ Below 0.5V

→ Replace the LCD assembly.

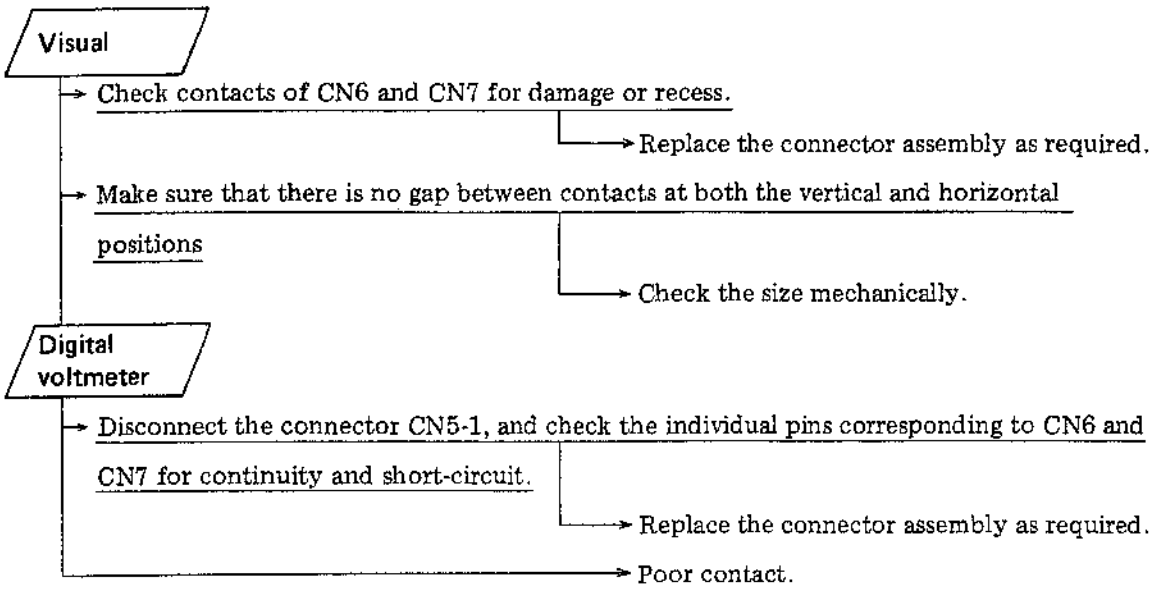
→ Disconnect the CN5-1 and measure voltage at the same terminal.

→ Below 0.5V

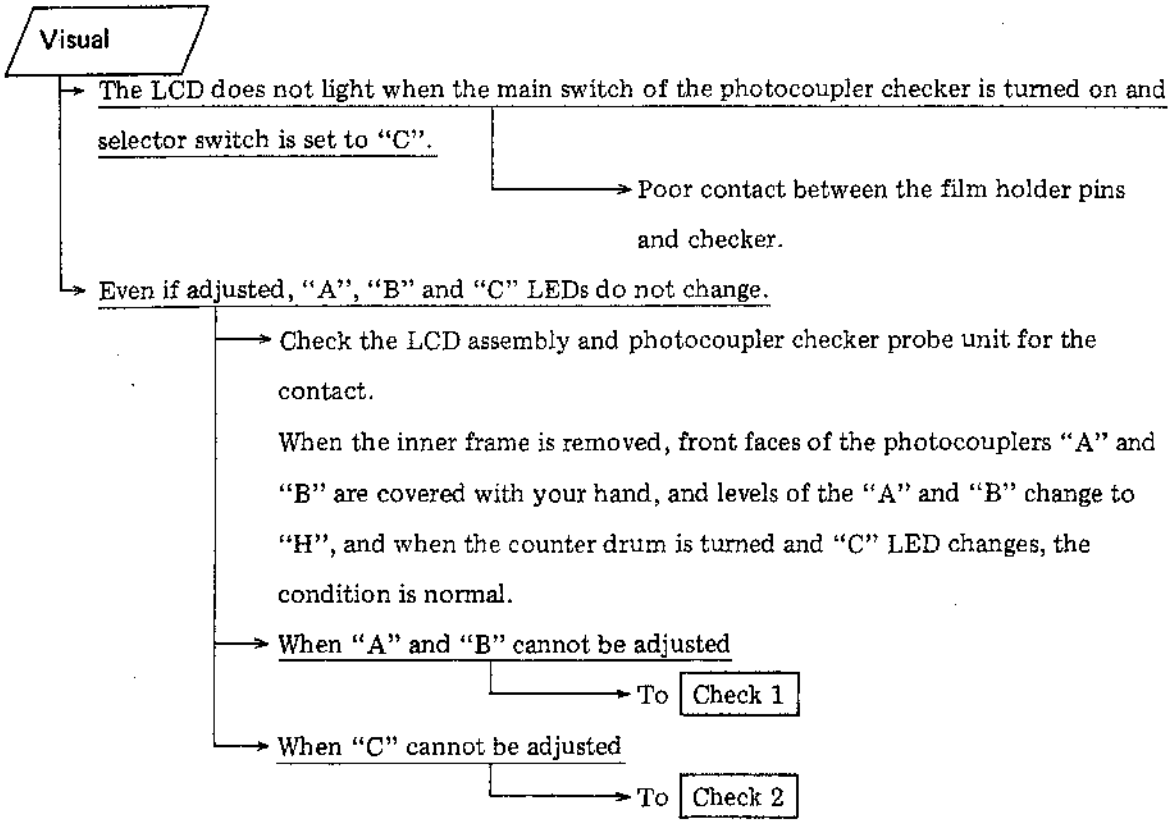
→ Replace the power supply assembly.

→ A short-circuit exists within the connector assembly or across contacts.

21. The film holder operates normally at the horizontal position but it does not operate or operates but abnormally at the vertical position. (This trouble occurs basically due to poor contact.)


Visual
Check contacts of CN6 and CN7 for damage or recess.
Replace the connector assembly as required.
Make sure that there is no gap between contacts at both the vertical and horizontal positions
Check the size mechanically.
Digital voltmeter
Disconnect the connector CN5-1, and check the individual pins corresponding to CN6 and CN7 for continuity and short-circuit.
Replace the connector assembly as required.
Poor contact.

22. Sensitivity of the photocoupler cannot be adjusted


Visual
The LCD does not light when the main switch of the photocoupler checker is turned on and selector switch is set to "C".
Poor contact between the film holder pins and checker.
Even if adjusted, "A", "B" and "C" LEDs do not change.
Check the LCD assembly and photocoupler checker probe unit for the contact.
When the inner frame is removed, front faces of the photocouplers "A" and "B" are covered with your hand, and levels of the "A" and "B" change to "H", and when the counter drum is turned and "C" LED changes, the condition is normal.
When "A" and "B" cannot be adjusted
To Check 1
When "C" cannot be adjusted
To Check 2

Check 1

- When adjusted at position of "C", it cannot be realized as is at levels "H" and "L".
  - Is the reflector of the inner frame clean ?
    Is not the reflector damaged ?
    - Replace the reflector with a new reflector.
  - Make sure that the variable resistors (3-8 and 3-9) turn smoothly.
- When variable resistors (3-8 and 3-9) are turned fully, either one of them lights only.
  - Check the connectors of the photocouplers A and B for the connection and soldering.
    - Repair as required.
  - Set the digital voltmeter (② of the photocoupler checker) to REF A or B, turn the variable resistors (3-8 and 3-9) and see the LEDs change or not.

    NOTE:

    REF A is for the center (4th from the right), and VR (3-9) corresponds to REF A.

    REF B is for the position 3rd from the right, and VR (3-8) corresponds to REF B.

    - Does not change
      - Recheck the probe for contact, and still does not change, replace the LCD assembly with a new one.
    - Replace the photocoupler assembly A or B.

Check 2

- When the film holder is moved, the buzzer sounds one second after and it stops.
  - Turn the variable resistor (3-10) 1/4 to the left or right in advance, and move the film holder again.
  - Check the lead wires extended from the PTK assembly for soldering.
  - Reset the LCD assembly.
- The film holder does not move.
  - Is not the dark slide inserted ?
    - Pull out if inserted.
  - For the "A" and "B" LED displays, is not level of "A" "L" and level of "B" "H" ?
    - Turn the drum of the inner frame (jig) to correct the level of "A" to "L" and level of "B" to "L".
  - Is not the switch (S2) (1-73) turned on ?
    - Turn it off.
- The LED for "C" fluctuates.
  - Can the counter drum be turned smoothly ?
    - Check the mechanical system and belt of the inner frame (jig).
  - Is not the counter drum deformed or the hole clogged ?

V. INSPECTION

1. Inspection of operations

(1) Camera only (without loading lens and film holder)

1) At OFF mode

Make sure that each LED goes out and each unit does not operate.

2) At S, C and M modes

a) LED-G should blink.

b) The mirror must be able to go up and down.

c) The camera does not operate when the shutter release button or wind button is depressed.

(2) Camera with the shutter mounted

Set the shutter speed to 1/400 sec.

1) At OFF, S and C modes

a) The shutter should not operate when the shutter release button is depressed.

b) The LED-G should blink at S or C mode.

2) At M mode

a) The LED-G should blink.

b) The shutter must operate when the shutter release button is depressed.

c) Mount a flash. The flash must fire when the shutter release button or synchro-test button is depressed.

3) At M mode with the mirror gone up.

The shutter must be released only once when the shutter release button is depressed. (With the mirror gone up)

(3) Film holder and remote release

1) Insert the dark slide.

a) The LED-G should blink at S, C or M mode.

b) The film should not operate when the remote release is depressed.

2) Pull out the dark slide.

a) The LED-G should light.

b) The shutter should be released and film should be taken up once when the remote release is depressed continuously at S mode.

c) The shutter should be released and film should be taken up continuously as long as the remote release is depressed at C mode.

d) The shutter should be released only once when the remote release is depressed once at M mode.

The film should be taken up when the WIND button is depressed.

3) Remote buzzer

a) The exposure (—) should be displayed and remote release buzzer should sound when the film speed (ISO) is set to ISO 40, the camera lens is shielded from light and the shutter release is depressed.

b) The exposure (+) should be displayed and remote release buzzer should sound when the film speed (ISO) is set to ISO 1600, the camera is faced to a high brightness and the shutter release is depressed.

2. Inspection of negative operations

(1) Install a negative lens on the camera. (Actually, set the shutter speed to 4 sec., and detach the lens immediately after releasing the shutter.)

Make sure that the LED-G blinks under S mode.

Under the above condition, depress the shutter release, and make sure that the LED-G and LED-O light alternately and buzzer in the film holder sounds.

(2) Set the film holder to a netative mode.

Depress the WIND button under M mode, and make sure that the LED-G and LED-O light alternately and buzzer in the film holder sounds.

3. Control test

(1) Front unit

1) Focusing knob:

For both the both sides and one side, the focusing knobs should move smoothly.

2) Focus lock lever:

It should not move when the camera mounted with a lens is faced downward.

3) Feeding out value:

It should meet with 0 at the closeed up distance.

4) Focusing adjustments:

It should click correctly, the index should be matched the lock should effect and it moves smoothly for all the tilt, left and right shiftings, swing and rise and fall.

5) Bellows:

It should be possible to attach, detach and lock the standard bellows.

6) Lens:

a) Mounting

It should be possible to mount the lens through a single touch motion, and the lens should be locked securely. When mounted, the lens should not have any play.

Further, make sure that the lock lever does not come out when the safety key is not slid.

b) Dismounting

It should be possible to release the lock lever by a single hand control, and the lock lever should be released when the safety key is slid.

7) Accessory shoe

The accessory shoe should be installed firmly. When a flash is mounted, it should fire correctly.

(2) Viewfinder

1) Hood: It should be locked firmly with the lock button.

2) Folding, opening and closing controls

a) When the cover is raised, the hool should open correctly.

b) It should be folded correctly when the hinges in both sides are pushed inward.

c) It should not be folded when the hinge in one side is pushed only.

3) Magnifier:

The magnifier should spring up when the release lever is slid, and it should be accommodated and locked when the magnifier is pushed down.

The magnifier should have no stain or scar, and it should be clean.

4) Focusing screen:

It should be able to detach and attach the focusing screen easily, and it should have no stain, scar or dust on it.

(3) Camera body

1) Right side:

It should be able to attached and detach the battery, and it should be locked firmly smoothly when attached.

2) Left side:

a) Mode switch knob:

It should have a click feeling and the index matches correctly when it is turned. The knob should not come out easily.

The film should not be advanced when the WIND button is depressed at S or C mode.

b) Shutter speed selector dial:

It should have a click feeling and the index matches correctly when it is turned. When the lock button is depressed, it should be turned to AUTO. At the AUTO position, the lock should effect.

c) Mirror UP-DOWN switch:

It should operate smoothly.

d) Synchro test button:

It should operate smoothly, and when a flash is mounted on the accessory shoe or connected to the flash terminal, the flash should fire correctly.

e) Shutter release button:

It should operate smoothly.

3) Back:

a) Film holder mounting base:

For both vertical and horizontal positions, it should be possible to mount a film holder smoothly.

b) Contacts:

No foreign matter should exist, and all the contacts should not be deformed or discolored.

FUJI PHOTO FILM CO., LTD.